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COMMERCIAL FISHERIES REVIEW

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COMMERCIAL FISHERIES REVIEW

A review of developments and news of the fishery industries
prepared in the BUREAU OF COMMERCIAL FISHERIES.

Joseph Pileggi, Editor
H. M. Bearse, Assistant Editor

Address correspondence and requests to the: Chief, Branch of Market News, Bureau of Commercial Fisheries, U. S. Department of the Interior, Washington 25, D. C.

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Editorial Assistant--Ruth V. Keefe

Compositors--Jean Zalevsky, Alma Greene, and Helen Paretti

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COMMERCIAL FISHERIES REVIEW

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INVESTIGATION OF THE POTENTIAL ALBACORE RESOURCE OF THE CENTRAL NORTH PACIFIC

By Joseph J. Graham,* and James W. McGary**

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ABSTRACT

A study of the albacore tuna resources in the central and eastern North Pacific by exploratory fishing of a research and a chartered vessel of the U. S. Bureau of Commercial Fisheries Laboratory, Honolulu, culminated in a commercial-scale test. The test was made with gill nets in the central North Pacific during July and August 1958. The catches obtained from the chartered vessel Paragon showed that summer gill-netting for albacore in the central North Pacific was not commercially feasible. However, environmental conditions encountered in 1958 were not similar to those in 1955 and 1956 when the exploratory catches, which prompted the test, were made. Colder surface water was present during 1958, and as a result, there was a southward shift of surface temperatures and a corresponding shift in albacore distribution. An instance of unusual albacore behavior was also observed which might have been related to the environment and have affected the enticiency of the gill net fished from the Paragon. It is suggested that one vessel on a single cruise does not provide an adequate test of the potential albacore fishery in the area.

INTRODUCTION

In 1954 the U. S. Bureau of Commercial Fisheries Biological Laboratory at Honolulu, Hawaii, received an allotment of funds from the Saltonstall-Kennedy Act (68 Stat. 376) to study the albacore tuna, Thunnus germo (Lacepede),1/ in the central and eastern North Pacific. One of the major objectives of this study was to determine whether commercially profitable concentrations of albacore tuna were present in the mid-ocean area between the Japanese fishery in the western North Pacific and the United States fishery along the west coast of North America. A series of exploratory fishing and oceanographic cruises was made in the area between 170° E. longitude and the United States west coast. This phase of the study culminated in a commercial-scale test of albacore fishing in the mid-ocean area during July and August of 1958.

The series of cruises leading up to the commercial test provided information on the seasonal distribution and relative abundance of albacore (Graham MS.)2/. The results may be summarized as follows. In the fall, there was an almost continuous distribution of albacore

*Fishery Research Biologist } Formerly of the Fishery Biological Laboratory, U. S. Bureau of Commercial Fisheries,
**Oceanographer } Honolulu, Hawaii.
Note: Present address of senior author: Bureau's Biological Laboratory, Galveston, Tex.
" " " junior " : Office of Naval Research, Department of Navy, Washington, D. C.

1/Also known as Germo alalunga (Bonnaterre), Thunnus alalunga (Gmelin), and Germo germo (Lacepede).
2/Graham, Joseph J. MS. "The macroecology of the albacore tuna, Thunnus germo (Lacepede), in the central North Pacific."

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across the North Pacific between the Japanese and the American west coast fisheries. This same area was to a large extent devoid of fish in the winter. During the spring, albacore were present between the two fisheries, but their distribution was discontinuous, and they were difficult to find in abundance. A concentration of albacore was located in the summer around the mid-forty latitudes between 175° W. and 160° W. longitude south of the Aleutian Island chain. East of 160° W., fish were scarce until the vicinity of the west coast of North America was reached.

The discovery of the summer concentration of fish in the central North Pacific came about primarily through the use of surface gill nets. Surface trolling lines, the major gear used in the American west coast fishery, were only of secondary importance (Tester 1956, Anonymous 1956, Graham 1957, and Graham and Mann 1959). It appeared that this area contained albacore which could be exploited commercially, because (1) the concentration of fish was located in the same area during two consecutive summers, 1955 and 1956; (2) in 1956, within the area of concentration, good catches were persistent locally for a period of 2 to 3 days; and (3) the fish captured were mostly of a size acceptable for canning (10 to 28 pounds).

THE PLAN

These findings warranted a practical test with gill nets by commercial fishermen. It was decided to engage a chartered vessel, with a guaranteed return to the fishermen. This arrangement allowed us to take advantage of the knowledge we had gained and insured an adequate test of the area. It also provided freedom of operation in order to take advantage of the skills and knowledge of the fishermen and simulated as nearly as possible a commercial fishing operation. The bid specifications were prepared with these features in mind.

The general area delimited for fishing encompassed all positions where promising catches had been made during the 1955-56 summer cruises (41° N. to 48° N. latitude, and 175° W. to 155° W. longitude). Locations of the individual gill-net sets were left to the discretion of the master of the vessel. Each prospective bidder was provided with background material summarizing previous catch data for the area.

The successful bidder was required to equip his vessel so that a minimum of 40 shackles of gill-netting could be set. The construction of the shackles was to be based in part on a study by Graham and Mann (1959) on the results of previous gill-net fishing conducted by the Honolulu Laboratory. The mesh was to measure between $7\frac{1}{2}$ and $8\frac{1}{2}$ inches (stretched measure) which would allow the escape of small fish. The minimum length of each shackle was to be 50 fathoms and its depth 5 fathoms. To obtain full payment of the contract price, the vessel was to set 1,200 shackles between July 20 and September 10, 1958, or as an alternative, catch at least 60 tons of albacore. All sets were to be made during evening twilight and allowed to soak at least 6 hours before being retrieved. In addition to fishing gill nets, a minimum of 6 surface lines were to be trolled during all daylight runs within the fishing area and at least 3 lines on runs to and from the fishing area.

The Bureau's research vessel Hugh M. Smith was to make oceanographic and biological observations in the fishing area, on conditions usually associated with the presence or absence of albacore. These observations were to be compared with those of previous summer cruises (1955 and 1956) and to assist the contract vessel by delineating the distribution of albacore. Albacore were to be sampled in the surface layer by using: (1) 10 shackles of gill net with mesh sizes of $4\frac{1}{2}$ to $7\frac{1}{2}$ inches; (2) 5 trolling lines; and (3) 20 baskets of a specially designed long line with 12 droppers per basket and with each hook suspended from a buoy. Droppers were placed 15 fathoms apart along the continuous mainline and were grouped in series of 3 each with 4 lengths, 2, 4, 8, and 12 fathoms. The gill net was set at twilight and allowed to fish overnight. Lines were trolled on daylight runs between stations and when patrolling long-line sets, which were made primarily in the morning hours. A more complete description of the fishing methods employed aboard the Hugh M. Smith and the contract vessel is presented elsewhere (McGary and Graham 1960).

THE COMMERCIAL TEST

Northwestern Fisheries Inc. of Seattle, Wash., submitted the low bid of $45,990 for their vessel the M/V Paragon, a 90-foot (over-all) halibut schooner with a beam of 19 feet and a 9-foot draft (empty). Her cruising and maximum speeds were 10½ and 11 knots, respectively. The ability of the vessel to fish gill nets under the summer weather conditions of the central North Pacific had been proven during previous salmon research cruises fielded by the Bureau's Seattle Exploratory Fishing Station (Powell and Peterson 1957).

Fig. 1 - Crew of the Paragon. One crew member is not shown here.

The M/V Paragon departed from Ballard, Wash., on July 16 with a master, a crew of four fishermen (fig. 1), and one of our Laboratory's biologists aboard.

The first gill-net set from the Paragon was made on July 26 at 41° 40' N., 157° 11' W. (fig. 2), and resulted in a promising catch of 145 albacore (2,800 pounds). Two subsequent sets in the same vicinity yielded successively smaller catches of 133 fish (2,000 pounds) and 119 fish (1,900 pounds). Compared to the first 3 sets, the second group of 3 catches in this vicinity was drastically reduced and declined steadily to a low of 13 fish (200 pounds). The Paragon then explored northward and westward to 163° 37' W., without any significant improvement in catch. Meanwhile, gill nets were set from the Hugh M. Smith for the first time on July 29; five sets were made along 160° W. (fig. 3) in about the same latitudes as the sets made by the M/V Paragon. Only 4 and 5 albacore each were caught in two of the sets; none in the other three sets.

As a result of these poor catches, the efforts of the two vessels were coordinated in an attempt to locate albacore in abundance. It was decided to explore and compare catches made in western and eastern portions of the area. Therefore, after the completion of work along 160° W., the Hugh M. Smith's cruise plan was altered, and instead of working along 165° W. the vessel turned westward to 175° W. The M/V Paragon returned eastward. The numbers of fish caught per set from both vessels varied considerably (figs. 2 and 3). The one relatively good catch of 49 albacore in the 10 shackles of gill net fished from the Hugh M. Smith was offset by the fact that about one-half of these fish weighed less than 10 pounds each. As pointed out above, fish less than 10 pounds were purposely excluded from the Paragon's catch by the large gill-net meshes (7½ to 8½ inches).

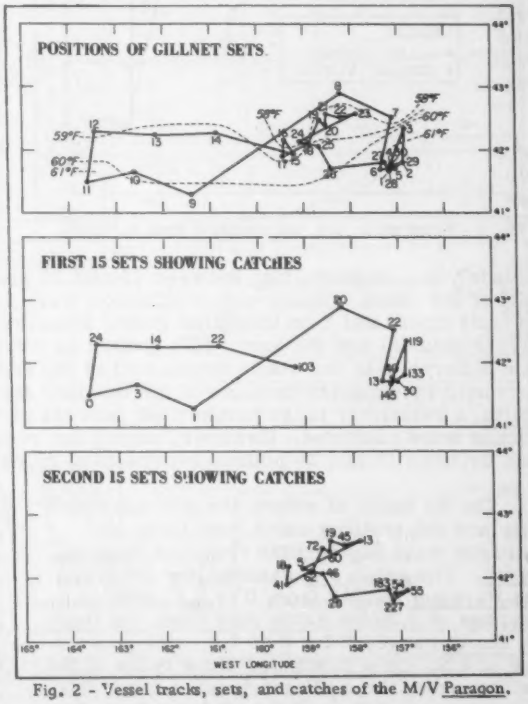

Fig. 2 - Vessel tracks, sets, and catches of the M/V Paragon.

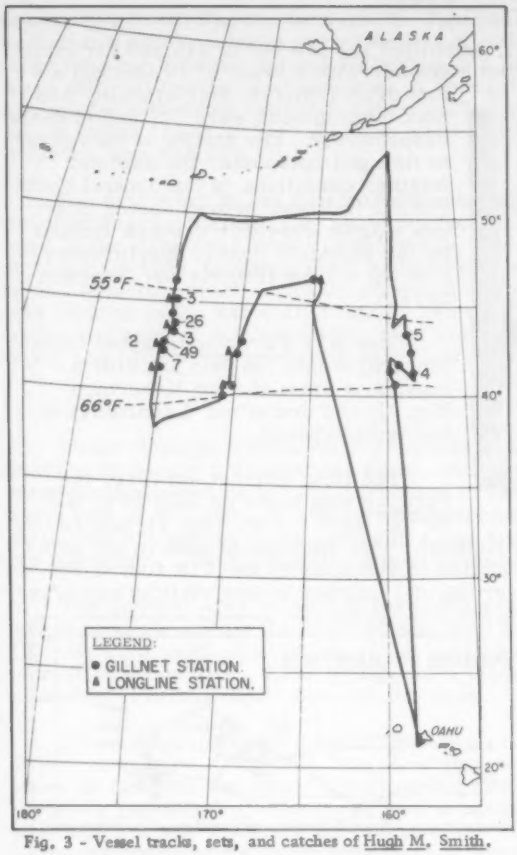

Fig. 3 - Vessel tracks, sets, and catches of Hugh M. Smith.

The master of the Paragon considered these results and elected to remain in the vicinity of 158° W. (fig. 2), where he judged that the fishing, while not good, showed some promise. Unfortunately, this promise was not fulfilled, and the Paragon then returned to the vicinity of her first set. There, 2 good catches of about 2,800 pounds (183 fish) and 3,400 pounds (227 fish) were made in 4 sets. The catches made from the Paragon and those from the Hugh M. Smith, which in the meantime had explored as far west as 170° W. and found no commercial quantities of albacore, did not indicate to the master of the former vessel that it would be profitable to continue fishing beyond the contract period, so he departed the fishing area for Seattle on August 30. The Hugh M. Smith was scheduled to remain in the area to continue fishing and to make oceanographic observations along 165° W. longitude. However, the serious illness of a fisherman forced the captain to discontinue the cruise on September 2, and the vessel returned to Honolulu (fig. 3).

A summary of the catch statistics shows that 1,617 albacore were caught from the Paragon by gill nets and 234 fish by trolling; of the latter number, 212 were caught in the area of gill-netting. The weight of the catch unloaded from the Paragon at Seattle was 27,053 pounds. This weight was made up of individual fish ranging in size from $6\frac{1}{2}$ to 46 pounds. Three size groups were present: $6\frac{1}{2}$-10 pounds, 10-21 pounds, and 21-46 pounds. (A total of 781 albacore were measured by the biologist aboard the Paragon.) Approximately 92 percent of the fish were desirable commercially (i.e., each greater than 10 pounds), and of those, fish between 15 and 17 pounds accounted for 49 percent or almost one-half of the catch. Ninety-seven albacore were caught by the Hugh M. Smith with gill nets, 13 on troll lines, and 2 on long-line gear. Measurements of 107 showed a similar size range ($6\frac{1}{2}$-35 pounds) and the same size groups as were found in the catch made from the Paragon. One difference in the size composition of the fish obtained from the two vessels was evident. As would be expected because of the smaller meshes ($4\frac{1}{2}$ - $6\frac{1}{2}$ inches) used from the Hugh M. Smith, a relatively large number (41 percent of the total catch) of albacore smaller than 10 pounds were captured. However, among the remaining fish of commercially desirable sizes, fish between 15 and 17 pounds represented 29 percent of the total catch.

On the basis of effort, the gill-net catch rate and the trolling catch rate from the Paragon were higher than from the Hugh M. Smith. The catch per shackle per set from the Paragon ranged from 0 to 5.7, with an average of 1.3; the catch rate from the Hugh M. Smith ranged from 0 to 4.9, with an average of 0.5. On a catch-per-hour basis in the fishing area, the troll catch rates from the Paragon varied from 0.0 to 7.4 per hour for individual days, with an average of 1.1. The

Table 1 - Summary of Expenses and Proceeds from the M/V Paragon Albacore Venture

	$
Expenses:	
Salaries	5,548.30
Fuel	1,742.00
Food	1,344.29
Gear1/	4,553.95
Total	13,188.54
Proceeds from the sale of albacore	4,800.00

1/Only one-third of the total cost of the gill net ($13,406) and trolling gear ($85.28) has been entered. It is assumed that with a reasonable amount of repair both could be used for at least two additional trips.

rates from the Hugh M. Smith were much lower; 0.0 to 0.5 per hour, with an average of only 0.06.

The 13½ tons of albacore captured from the Paragon were far below the 60 tons anticipated from the results of previous summer surveys (1955 and 1956). The weight of the catch after a storage period of 3 months was approximately 24,000 pounds; it was sold for 20 cents a pound for a total of $4,800. The degree to which this particular test of the potential albacore fishery of the area was a financial failure is evident from the cost and proceeds statistics of table 1.

AN ENVIRONMENTAL DIFFERENCE

The failure of the albacore catch by the Paragon to live up to expectations appears to be related to a difference between the oceanic environments which existed during the summers of the previous surveys (1955 and 1956), on the one hand, and that which prevailed during the summer of the test (1958), on the other. The oceanic circulation in the fishing area is largely zonal (east-west), and only slight seasonal and annual shifts occur in the location of the boundaries of the major water types (McGary et al. 1958). However, a major change in the physical characteristics of the area does occur in the form of large seasonal fluctuations in surface

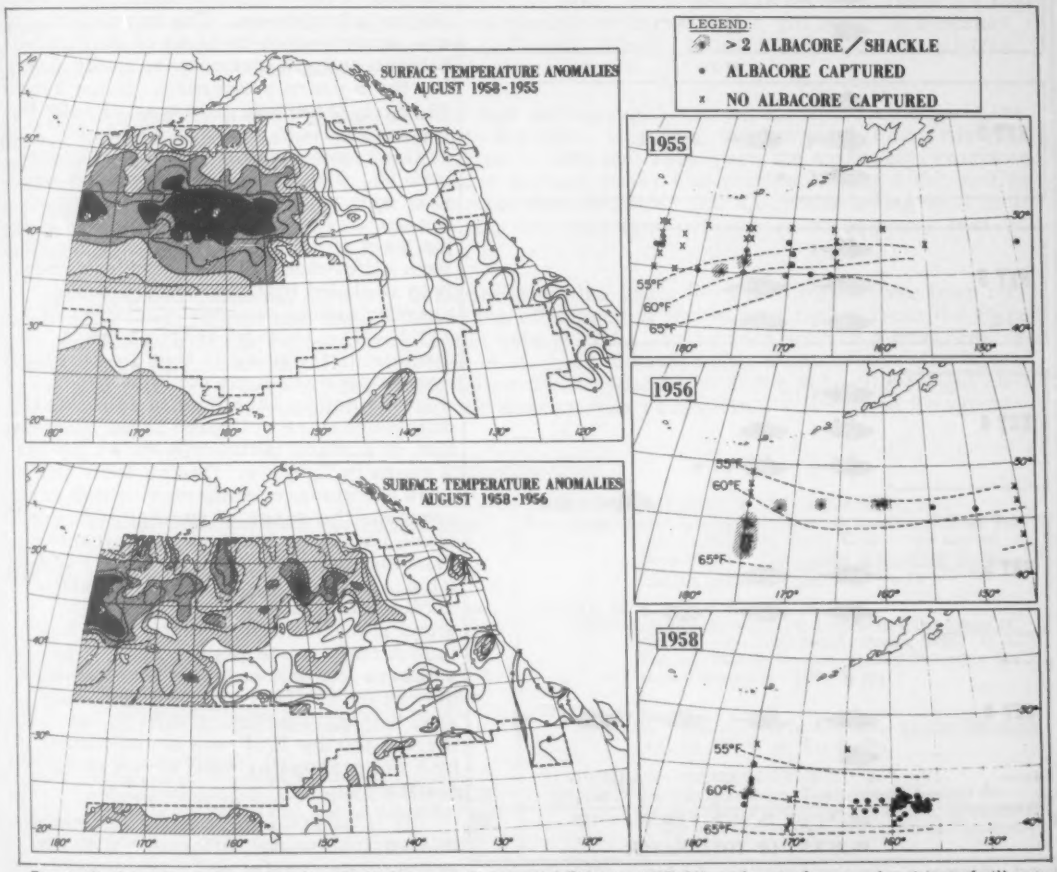

Fig. 4 - Surface temperature anomalies (U. S. Bureau of Commercial Fisheries 1957-59), surface isotherms and positions of gill-net catches of albacore during the summers of 1955, 1956 and 1958. The 1955 gill net catches were obtained from Powell and Peterson (1957), and isotherms and the 1956 and 1958 catches from the Honolulu Laboratory. Hatching indicates areas colder in 1958 than in 1955 and 1956.

temperature. Also, local annual differences in surface temperature can be considerable for a given year, and such a change occurred during the summer of 1958.

Sea-surface temperatures observed from the Hugh M. Smith and M/V Paragon in the summer of 1958 were as much as 8° to 10° F. colder in some parts of the fishing area than those obtained during the summer cruises of 1955 and 1956. These colder temperatures represented either (1) differences in seasonal warming (which were not as great in 1958) or (2) the influx of a water mass having inherently different temperature characteristics. However, the thickness of the surface layer above the thermocline (50-150 feet) was approximately the same in 1958 as during the previous years, discounting the second possibility.

Charts in figure 4 show the August 11-20 anomalies or departures of local surface temperatures in 1955 and 1956 from those of 1958. Lines are drawn through points of equal departure at intervals of 2° F. Where the lines enclose an area colder in 1958 than in 1955 and 1956, it is hatched, the amount of hatching depending upon the degree of coldness. The anomaly charts are accompanied by plots of surface isotherms and gill-net catches made during the 3 years concerned. In the 1958-55 chart, the entire area west of 140° W. longitude, from about 35° N. to 50° N. latitude, is shown as colder in 1958 than in 1955. The greatest differences appear as areas of 10°-12° F. colder water occurring in the vicinity of 44° N. to the west of 155° W. The magnitude of such differences is more evident when it is realized that they approach the average annual seasonal variation of 15° F. The 1958-56 chart shows a similar distribution in that the surface waters over the area north of 40° N. were colder in 1958 than in 1956. These differences are reflected in the distribution of surface isotherms shown for the 3 years in figure 4. During 1955 and 1956 the surface isotherms, which encompass the range of surface temperature usually coincident with albacore distribution in the central North Pacific (Graham 1957, Powell and Peterson 1957, and Graham MS.2/), are to be found approximately 3 degrees of latitude farther north than in 1958. The albacore gill-net catches, although they did not cover the area very well, suggest that the southward shift in isotherms during 1958 was accompanied by a corresponding shift in albacore distribution.

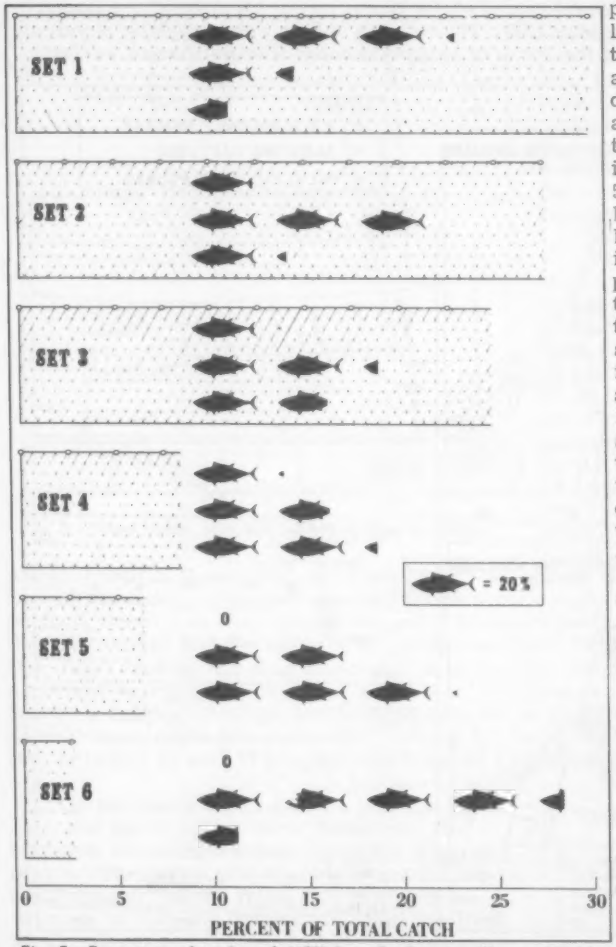

Fig. 5 - Percentage of total catch (480) from the first six gill-net sets and the percentage (per set) of the fish observed in the top, middle, and bottom of the net. The length of the net simulates the percentage of the total catch and the number of fish represents the percentage captured in that position of the net. A total of 393 observations was made concerning the position of fish in the net.

It is difficult to directly associate this environmental difference with the years of successful and unsuccessful gill-netting. However, one instance of unusual behavior exhibited by the albacore deserves mention because of its possible relation to the environment

2/See footnote 2 on p. 1.

and its bearing on the efficiency of the Paragon's gill nets. Analysis of the depth positions of albacore caught in the Paragon's net at her first six stations (fig. 5), when the catch dropped from 1½ tons to almost nothing, showed a progressive increase in the catch percentiles of the bottom and middle two-thirds of the net[3]. Possibly the albacore progressively went below the 30-foot depth of the net in search of forage which was generally low according to surface night-light counts of saury and squid from the Paragon (McGary and Graham 1960). Whether or not this represented a general decrease of albacore forage in the fishing area during 1958 as compared to 1955 and 1956 cannot be ascertained.

In conclusion, the annual variability in the oceanic environment and in the distribution of albacore is so great that the operation of a single vessel on a single cruise is not an adequate test of the commercial fishing potentiality of the area investigated.

SUMMARY

Exploratory fishing by the U. S. Bureau of Commercial Fisheries Biological Laboratory at Honolulu during a study of the albacore tuna resources in the central and eastern North Pacific, resulted in plans for a commercial-scale test. This test was directed toward a mid-ocean, summer concentration of albacore susceptible to harvest with gill nets. A contract was made with owners of the M/V Paragon of Seattle, Wash., to conduct a commercial trial in the area during July and August 1958 using commercial gill nets.

The catches from the Paragon showed that summer gill-netting for albacore tuna in the central North Pacific was not commercially feasible. However, environmental conditions encountered in 1958 were not similar to those in 1955 and 1956 when the exploratory catches, which prompted the test, were made. Colder surface water was present during 1958, and as a result there was a southward shift of surface temperatures and a corresponding shift in the albacore distribution. In addition, one vessel probably does not provide an adequate test of the potential albacore fishery in the area.

An instance of unusual albacore behavior was also observed which might have been related to the environment and have affected the efficiency of the gill net fished from the Paragon. An analysis of six consecutive gill-net sets within a single area showed a progressive decrease in catch. The pattern of the fish in the nets indicated that the decrease was caused by the albacore progressively decending below the 30-foot depth of the net. Night-light observations suggested the possibility that the descent was related to a scarcity of forage at the surface.

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[3]This trend was determined by inspection. Also, the data were examined using the Chi-square. A hypothesis was set up that the fish were distributed in the net in a 1:1:1 ratio in the top, middle, and bottom. The sums of the Chi-squares of the first five stations showed a statistically significant deviation from this expected ratio ($X^2 = 102.05$, degrees of freedom 9). The interaction between sets was also statistically significant ($X^2 = 90.04$, degrees of freedom 7), and it is thought that this heterogeneity lends credence to the suggested trend.

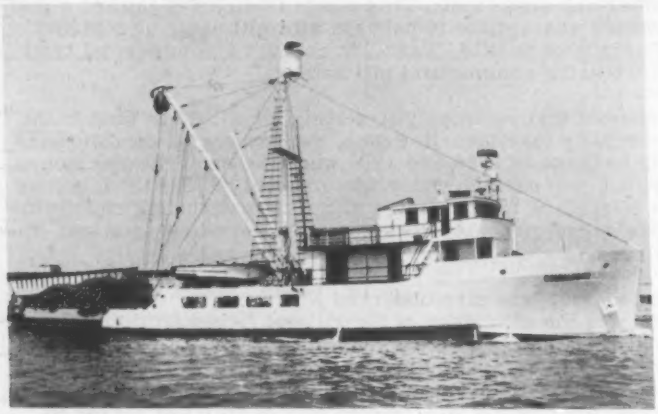
FINANCIAL ASSISTANCE TO FISHING INDUSTRIES IN VARIOUS COUNTRIES

By C. E. Peterson*

BACKGROUND

Interest in governmental financial assistance to the fishing industries has been increasing in recent years. Practically every nation with a fishery of any importance has some program of credit assistance. There are three general types of financial aid given: (1) loans, (2) direct subsidies, and (3) indirect subsidies. Using these categories, loan and mortgage insurance or guarantees are included with direct loans.

In the space available, all fishery loan programs as used all over the world cannot be reviewed in detail. Examples of each of the various types of loans can be described, and purposes and results pointed out. Some programs have dual purposes and cannot be classified distinctly.



A former tuna clipper which was converted to a purse seiner with the aid of a fishery loan from the U. S. Department of the Interior.

The types of credit assistance provided by various governments in all parts of the world are shown in table 1.

LOANS

Generally speaking, the developing countries make loans to fishermen primarily as a means of mechanizing fishing and increasing their standard of living, or to increase catches in order to provide food for the population or products for export.

As an example, in Jamaica, the Fisheries Division purchases outboard motors, sells them to fishermen and allows 18 months for complete repayment. The Government then provides gasoline to fishermen at less than the commercial price by selling it duty-free, but adds one shilling to the price of the gasoline and applies this on the note for payment of the motors.

In the State of Madras in India the Director of Fisheries is authorized to lend money to cooperatives to reloan to their members for general working capital. Also, he can sell mechanized boats on hire-purchase, or a conditional sales contract basis. In this case 25 percent of the motor and 50 percent of the hull costs constitute a subsidy with the balance payable in installments over seven years. Similar arrangements are also available on trucks used in hauling fishery products. Other states in India have somewhat similar programs providing for construction of boats and purchase of nets, with the provision that a certain percentage of the cost will be handled as a subsidy.

In Uganda, Africa, the Uganda Credit and Savings Bank has been established using Government funds, deposits, and some International Cooperation Administration funds for capital.

*Chief, Branch of Loans and Grants, U. S. Bureau of Commercial Fisheries, Washington, D. C.

U. S. DEPARTMENT OF THE INTERIOR
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Table 1 - Government Loans Available to Fishery Industries in Various Countries

Country	Administration	Purpose
Belgium	Minister of Navy	Acquisition or improvement of vessels.
Canada	Fishermen's Loan Boards	Acquisition of vessels, engines, gear and equipment.
Denmark	Fishery Bank	Acquisition of vessels, engines, processing and marketing facilities.
France	Credit Societies	Acquisition of vessels, equipment, and engines.
	Central Bank of Overseas France	Acquisition of vessels and fishing gear.
West Germany	Loan Boards	Construction of vessels, purchase of engines, repairs and modernization.
Iceland	Fishery Loan Dept.	Acquisition of vessels.
	Fisheries Fund	Acquisition of vessels and improvement of processing plants.
	Iceland Bank of Development	Acquisition of vessels and processing plants and improvements to processing plants.
	Fish Industry Fund	Loans to assist new enterprises in the fishing industry.
India	State Fishery Agencies	Loans to cooperatives for relending. Financing sale of mechanized vessels and trucks on a hire-purchase basis. Loans for augmenting fish production, construction of boats, and purchase of nets.
Ireland	Sea Fisheries Board	Finances hire-purchase contracts for vessels.
Italy	Government guarantees loans from private lending institutions	Improvements to vessels, engines, gear, shore establishments, and distribution facilities.
Jamaica	Fishery Division	Acquisition of outboard motors.
Japan	Japan Development Bank	Assistance to large fishing enterprises.
	Central Cooperative Bank for Agriculture and Forestry	Loans to cooperatives for any purpose.
	Agriculture, Forestry and Fisheries Finance Corporation	Construction and gear costs to individuals and small enterprises.
	Government Special Account for Smaller Fisheries Credit Guaranty	Guarantees loans from banks to small enterprises and individuals.
	Fisheries Division	Direct disaster loans.
Malta	Minister of Posts and Agriculture	Acquisition or improvement of vessels or equipment.
Netherlands	Reconstruction Bank	Construction and modernization of vessels.
	Marketing Board for Fish and Fishery Products	Acquisition of retail frozen food cabinets.
Norway	Fishery Bank	Refinancing, rebuilding and acquisition of vessels, and purchase of equipment and gear.
	Norges Bank	Working capital for processing and marketing facilities. Also administers government guarantees of private short-term loans to fishing vessel owners.
	Ministry of Fisheries	Construction, reconstruction and expansion of processing plants.
Portugal	Fund for Renewal and equipment of the Fishing Industry	Construction and modernization of vessels and equipment.
Spain	National Reconstruction Credit Institute	Construction of large steel vessels.
	Central Bank for Maritime and Fisheries Credit	Purchase, construction and repair of vessels, purchase of engines, equipment and gear. Loans to cooperatives and processing plants.
Sweden	Fishery Loan Fund	Acquisition of vessels, engines and equipment.
	Fund for the Promotion of Fish Processing and Distribution	Acquisition of equipment to improve processing, storage and distribution.
	State Loan Fund for Gear	Replace fixed gear lost in storm.
Turkey	Agricultural Bank	Acquisition of vessels and engines.
Uganda	Uganda Credit and Savings Bank	To Africans for any business purpose.
South Africa Republic	Fishery Development Corporation	Purchase and repower vessels, provide water, electricity, homes, etc., for fishermen and processing plants in remote areas.
United Kingdom	White Fish Authority and Herring Industry Board	Acquisition of new vessels, engines and gear; vessel improvements; capital expenditures by cooperatives and processors; and working capital for processors.
United States of America	Secretary of the Interior (Fishery Loan Fund)	Financing and refinancing operations, maintenance, repairs, replacement and equipment of vessels and gear and research into the basic problems of the fishery.
	(Fishing Vessel Mortgage Insurance Program)	Insures mortgages given for construction, reconstruction, and reconditioning of fishing vessels.
Yugoslavia	Agricultural Bank	Construction and reconstruction of vessels, and purchase of gear.

Under certain conditions the "local" government guarantees 50 percent of the loan. As most of their loans are very small, the cost of administration exceeds the income from interest, and the excess costs of administration are paid by the Government.

These sample plans have been mentioned rather briefly to illustrate typical methods of handling loans in several countries because the problems and purposes in those countries are considerably different than those in the United States.

Most of the more highly developed countries that have a fishing industry of any consequence have loan programs to assist fishermen and vessel owners in one manner or another. These programs are generally designed to improve the economic position of the fisherman, although in some cases they are used to promote certain changes in the fishing industry which are felt to be desirable by the government.

There are three general ways of handling loans in the various more developed countries with a number of variations for each. First is a direct loan by the government usually through the fisheries agency. The second is a loan by a fisheries bank, a central government bank set up to handle loans, or through a fisheries development corporation which can make loans. The third is for the government to guarantee loans made by commercial lending institutions. Some countries use only one of these methods, others use all three.

For example, Denmark channels all of its lending programs through the Royal Fisheries Bank, and South Africa handles all of theirs through a Fisheries Development Corporation. Japan handles some loans on a direct-loan basis, makes others through the Japan Development Bank, the Agriculture Forestry and Fisheries Finance Corporation, the Central Cooperative Bank for Agriculture and Forestry, and also guarantees loans from commercial banks through the Government's Special Account for Smaller Fisheries Credit Guarantees.

The Royal Fisheries Bank in Denmark makes loans for the acquisition of vessels, replacement of motors, and for facilities for processing and marketing of fishery products. Although the Fisheries Bank operates entirely on government funds, the method of handling the loans is such that the government does not have to put the money up at the time the loan is made. When a loan is approved, the bank issues bonds to the fishermen in the amount of the approved loan. These bonds earn $5\frac{1}{2}$-percent interest, which is the same amount that is charged to the fishermen. The fishermen then must discount these bonds and sell them to whoever will purchase them. This discount usually runs from 4 to 6 and at times as high as 10 percent. The bond holder thus holds bonds issued by the Fisheries Bank and which are guaranteed by the Danish Government. Funds collected from the fishermen are used to pay off the bonds.

In Norway direct loans are made by the Fisheries Bank and in some cases by the Norwegian State Bank. In Sweden loans are handled by local government agencies, but the funds are obtained from the National Government. In West Germany direct loans are obtainable from the Federal Government for the construction of cutters. Guarantees of commercial loans are also available from the West German Government.

The purposes for which loans are made are also quite diverse. These range all the way from construction of a new vessel, vessel improvements, and fishing gear to the cost of acquisition, reconditioning, or improving processing plants, working capital for processors, and even loans on fishery products processed for export. South Africa Republic loans are made not only to purchase powered vessels, but also to permit fishermen to construct houses and to provide water, electricity, and other facilities to plants and communities constructed in isolated areas.

A number of European countries distinguish between the types of owners in making loans. Several of these countries will make loans only to a vessel in which the master is also the owner. In some cases if he is a part owner they will only loan his share of the cost and other owners must provide their share of the cost from other sources.

Countries report various degrees of success with their loan programs. For example, Ireland, which is making a determined effort to increase the fisheries at any cost and consequently has been exceedingly lenient in its loan program, reports that over 50 percent of the loans are seriously delinquent. However, the Irish Government feels that the program has achieved some success in that it is bringing more people into the fishing industry. On the other hand, Denmark reports that they have practically no problem with delinquent payments and that the program has been responsible for considerable modernization of its fishing fleet. In Great Britain one of the purposes was the conversion of coal-burning vessels to

oil-burning or Diesel engines in their white fish fleet. Subsidies have also been granted in conjunction with the British loan program, and the combination has been quite successful in encouraging the conversions.

In most of these countries it seems to be assumed that fisheries loans should be handled by the government, and as near as can be determined there does not seem to be any objection from commercial lending institutions. This lack of objection on the part of the commercial lending institutions is probably due to poor experience in collections in the past, and the feeling that they would prefer to lend their money to some less risky enterprises. The fact that many of these countries make loans only to skipper-owned vessels may also affect this feeling inasmuch as the larger so-called "company owned enterprises" still have to get their funds from commercial sources. As those generally are considered the better risks in European countries because of their more stable financing, the commercial lenders appear to be satisfied with this arrangement.

DIRECT SUBSIDIES

Direct subsidies or grants of various kinds are made by a number of countries. In the United Kingdom, grants of 25 percent are available for the construction of new vessels (excludes large distant-water vessels) or for conversion of coal engines to oil engines. The Herring Industry Board of that country owns a number of gutting machines and conveyors which are leased to processors who cannot afford to buy this type of equipment. In Malta, grants of up to 50 percent of the cost of acquisition or improvement of the fishing vessel or equipment may be obtained. Grants for these purposes are also available in France and in Ireland. A number of countries, including Belgium, Canada, France, West Germany, and Ireland also make grants to pay part of the interest owed by fishermen because of loans made in connection with the acquisition or modernization of fishing vessels. In the Province of Quebec, Canada, grants are made to be used to reduce the amount of life insurance premiums payable by a borrower in connection with private loans for the construction of vessels or the purchase of engines, equipment, or fishing gear.

INDIRECT SUBSIDIES

There are a number of what may be termed "hidden subsidies" used in various countries. The most obvious of these, of course, is simple tariff protection. There is also the requirement for licenses for the import of certain commodities which may restrict the amount which can be brought in. The use of absolute quotas or prohibition of imports of certain commodities may be used to protect a country's fisheries. In some countries, such as Norway, price supports are available for certain fishery commodities. Low interest rates on fisheries loans may be considered as a type of hidden subsidy. Exemption of products used by fishermen from import duties is also allowed in some countries. Accelerated depreciation schedules on fishing vessels may be considered a subsidy as may be the 160-percent investment allowance which has been proposed in Canada. Both accelerated depreciation and the 160-percent investment allowance which allows using depreciation in the amount of 160 percent of the total cost are useful only when relatively large profits are being made in the fishery. As this is not true in many of the United States fisheries, these programs would provide no assistance to those fisheries at this time. Basically, if a fishery is operating in a sufficiently profitable manner to be able to effectively use these two plans as a means of effective assistance, the fisheries are probably in sufficiently good financial condition as not to need governmental assistance.

TYPES OF AID FOR UNITED STATES FISHERIES

In the United States the fisheries loan fund is administered by the Secretary of the Interior through the Bureau of Commercial Fisheries. The program provides for loans for financing and refinancing operations, maintenance, repair, replacement and equipment of fishing vessels and research into the basic problems of the fisheries. Applications cannot be considered if the required credit is obtainable from any other source on reasonable terms.

The maximum period of a loan is 10 years and the present interest rate is 5 percent. There is no provision for loans to shore installations.

A loan and mortgage insurance program to aid in the construction, reconstruction, or reconditioning of fishing vessels is also administered through the Bureau. This provides for insuring loans and mortgages in amounts of not more than 75 percent of the actual cost of construction, reconstruction, or reconditioning of the vessel. The loan must be obtained from non-public funds. Credit requirements for this program are higher than for the fisheries loan fund. The advantage of an insured loan is generally the use of a longer maturity period and a larger loan on a given amount of collateral.

The only subsidy available to the United States fishing industry is a fishing vessel construction differential subsidy administered through the Bureau of Commercial Fisheries. Under certain restrictive conditions, this provides for payments equal to the difference in the cost of construction of the fishing vessel in a domestic shipyard and a foreign yard with a maximum of 33⅓ percent. This subsidy is only available to vessels designed to fish in a fishery which has obtained a finding of injury or threat of injury caused by increased imports. This finding must be made by the U. S. Tariff Commission or the Secretary of the Interior, depending on the tariff classification of the species involved. The plans for the vessel must be approved by the Maritime Administration and the Secretary of Defense, and the vessel must be built by the lowest competitive bidder under the supervision of the Maritime Administration.

The depressed condition of most of the fisheries of the United States at this time has been well documented. In connection with these, questions on the degree of assistance to be provided have been raised.

Basically, one of the questions regarding the fisheries loan fund in the United States is whether keeping the marginal operators in business is actually helping the industry as a whole. The good operator frequently can obtain credit elsewhere although at a higher interest rate and thus is not eligible for a fisheries loan. His competitor who may be a poorer operator is unable to obtain credit elsewhere and so becomes eligible for a loan from the Government at a lower interest rate. Would it be better for the industry to allow the poorer or marginal operator to go out of business and extend the assistance to the good operator? The question is whether it is advisable to make loans which admittedly only keep the vessel operating for an additional year or two, without doing something to improve the over-all condition of the fishery. If the over-all condition of the fishery does not improve, the fisherman is unable to pay the loan and he is no better off than he was prior to receiving the loan.

What can be done to help a fishery get back on its feet to a point where its operations are profitable? Research has been proposed as a means of assisting the various fisheries and the fishing industry as a whole. At the present time there is a question regarding how research can be of much lasting benefit to the industry because as quickly as a more efficient way of doing something is discovered or a new product developed which should increase the market, other countries producing fish for export to the United States can use the improved methods or produce the new product. But their cost advantage plus lower labor costs are usually retained. Certain technological advantages, particularly those provided by mechanization, may reduce the amount of labor required and thus somewhat reduce the total cost differential, but a certain amount of labor is always required and this will still be available at a lower cost in many foreign countries.

Currently, the fisheries loan fund in the United States is being administered so as to provide financing for anyone eligible to receive assistance who has the ability and resources to reasonably assure repayment. The more marginal operators generally cannot meet the latter requirement.

The mortgage insurance program provides assistance in obtaining long-term financing for the construction or reconstruction of vessels by the better operators who are able to obtain credit from commercial sources.

The construction differential subsidy program provides assistance in constructing vessels to be used in fisheries which have been found to be suffering injury or threat of injury because of increased imports. This program has had very little acceptance by the industry for two reasons: (1) vessel owners in eligible fisheries maintain that the amount of the subsidy is not large enough to enable them to compete with vessels built at lower cost in foreign yards under present conditions, and (2) fisheries which are in a sufficiently healthy condition to compete successfully are not eligible for the subsidy. As a result, current aid to United States fishermen is largely limited to credit assistance.

HUNTING ARCTIC WHALES WITH HYPODERMIC NEEDLE

A Maryland scientist hunted Arctic whales with a hypodermic needle the summer of 1961, according to the Director of the Natural Resources Institute of the University of Maryland.

The senior biologist for inland research of the Institute spent 3 or 4 weeks at the mouth of the Mackenzie River in Canada's Arctic Northwest Territories. During his stay he killed and retrieved white whales by using an ordinary hunting bow and arrows tipped with a special hypodermic cartridge.

Though not the largest of whales, the white whale attains 14-16 feet in length and weighs over 800 pounds as an adult. Their appearance in the relatively shallow water at the mouth of the Mackenzie is part of an annual mating migration.

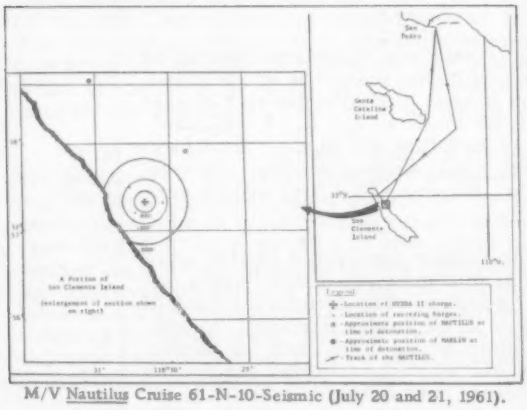
The specially-designed needle for whale use measures nearly $5\frac{1}{4}$ inches long and is equipped with three sharp barbs to hold it in the whale. When the needle-tipped arrow hits the target, a small explosive charge forces a special drug into the body of the whale to kill it. A small balloon on a line is attached to the arrow to follow the whale. It was expected that only one-tenth gram of the drug, succinylcholine chloride, would be needed to kill a one-ton whale, assuming that they are as sensitive to it as are white-tailed deer.

If this test and subsequent trials on larger species of whales show that they can be killed and retrieved in this manner, it will have a decided effect on the world's whaling industry. The standard means of taking commercial whales is by use of an explosive harpoon. In over 90 percent of the cases this method renders whale meat unfit for human consumption as food, and tons of meat are wasted each year for human consumption. The pelagic whaling industry, now facing near extinction, could use any economic gains from meat taken in good condition. The drug to be used in the new hypo-arrow would not be dangerous to humans or animals later consuming the meat, and little damage will be done by the needle.

TRENDS AND DEVELOPMENTS

California

EFFECT ON MARINE LIFE OF HIGH-EXPLOSIVE CHARGE STUDIED: M/V "Nautilus" Cruise 61-N-10-Seismic: Observations on the effect on marine life of a large, high-explosive charge were made by the California Department of Fish and Game research vessel Nautilus (July 20-21, 1961) in the vicinity of Wilson Cove on the northeast side of San Clemente Island. This was the first of 18 explosions proposed by the U. S. Naval Radiological Defense Laboratory for the project designated HYDRA II. Other objectives of the cruise were to (1) obtain specimens for determining the normal background level of radioactivity in the HYDRA II project area, and (2) make observations of environmental conditions in the channel between San Pedro and San Clemente Island.


San Pedro
Santa Catalina Island
San Clemente Island
A Portion of San Clemente Island
(enlargement of section shown at right)

M/V Nautilus Cruise 61-N-10-Seismic (July 20 and 21, 1961).

On July 21 at approximately 12:33 p.m., the first of a series of high-explosive charges was detonated by the U. S. Navy, using 10,000 pounds of HBX-1; precast in a spherical shape about 5½ feet in diameter with a booster charge of 125 pounds of TNT. The depth of charge was between 12 and 15 feet; distance from shore, 2,400 feet; depth of water, 300 feet; and location of charge, lat. 32°57'21" N., long. 118°30'20" W. Recording gear was on three barges moored 1,100 to 1,500 feet from the shotpoint and on two prominent points of land to the west.

Approximately 8 minutes after detonation of the explosion the Nautilus entered the area of the base surge which encompassed about 800 to 1,000 feet in diameter.

For the next 2 hours the area within a radius of one-half mile of the shotpoint was checked for dead fish. The patrol boat Marlin with several observers aboard worked with the Nautilus during this period.

The kill was estimated at approximately 2,700 fish with limits between 1,650 and 3,700. Fifteen species of rockfish (Sebastodes sp.) and jack mackerel (Trachurus) symmetricus) comprised the bulk of the kill.

With the exception of three vermilion rockfish, collected by the Marlin 1.5 to 1.75 miles north northwest of the shotpoint, all the fish were picked up within about one-half mile (3,000 feet) of it. The greatest concentrations were seen within 800 to 2,000 feet, indicating a lethal range between those two extremes.

A sample of fish from this first explosion was forwarded to the Department Radiation Officer for determining the normal background level of radioactivity in the HYDRA II project area.

Environmental conditions logged during the trip from San Pedro to San Clemente Island included: (a) Sea surface temperatures averaging 71.9° F. between San Pedro and Santa Catalina Island and 69.8° F. between Santa Catalina and San Clemente Island. Coolest temperature recorded was 64.6° F.

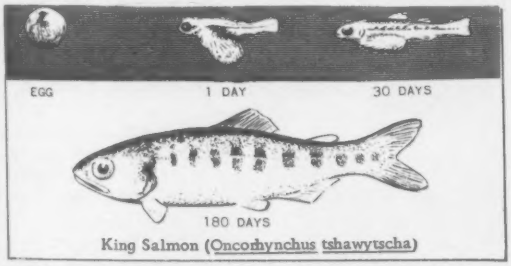
at Wilson Cove. (b) Muddy-colored water was a common sight during the trip to Wilson Cove. At times, visibility appeared to be no more than a foot below the surface. This condition was attributed to a profuse "bloom" of planktonic organisms. (c) Schools of Pacific bonito (Sarda chiliensis) were abundant in the San Pedro Channel. Most of these appeared to be actively feeding on aggregations of anchovy and saury. Two bonito, weighing about four pounds each, were caught on trolling lines off the east end of Santa Catalina Island.

Several large whales (presumably finbacks) were seen in the Outer Santa Barbara Passage.

* * * * *

MIDWATER TRAWLING FOR SALMON FINGERLINGS CONTINUED:

M/V "Nautilus" Cruise 61-N-14-Salmon: The midwater trawl operations of the California Department of Fish and Game research vessel Nautilus were continued (August 7-10, 22-25, 1961) in the Carquinez Strait, Baker Beach, and Point San Pedro areas to (1) capture marked salmon fingerlings on their seaward migration, and (2) determine areas in the ocean where salmon fingerlings may be captured.



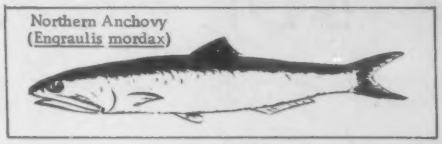
King Salmon (Oncorhynchus tshawytscha)

Trawling for marked salmon fingerlings in Carquinez Strait was conducted between 8:00 a.m. and 3:30 p.m., and each tow was for 20 minutes. Tows were alternated between upstream and downstream and between the north shore, center, and south shore of the channel. A flow meter was used to measure the amount of water strained by the net on each tow.

A total of 70 tows was completed in the Strait during this cruise. A total of 19 king salmon (Oncorhynchus tshawytscha) fingerlings was captured, none of which bore marks. No rainbow trout (Salmo gairdneri) were captured during the month of August.

Two tows were made at a depth of 40 to 60 feet to determine if salmon were migrating in deeper water; however, none were captured. With the exception of these 2 deep tows, all fishing was done at the surface.

Other species appearing in the catch, listed in order of abundance were: northern



anchovy (Engraulis mordax), Pacific herring (Clupea pallasi), shrimp (Paleomon sp.), striped bass (Roccus saxatilis), American shad (Alosa sapidissima), jack smelt (Atherinopsis californiensis), Sacramento smelt (Spirinchus thaleichthys), Northern midshipman (Porichthys notatus), starry flounder (Platichthys stellatus), Pacific lamprey (Entosphenus tridentata), and grey smoothhound (Mustelus californicus).

One day was spent trawling off Point San Pedro and Baker Beach. Two 20 minute tows off Point San Pedro, at a depth of 50 to 60 feet, yielded catches of large jellyfish. At Baker Beach, two 20-minute tows at a depth of 40 to 50 feet produced large numbers of herring and a few smelt. No salmon were captured at either location.

Note: Also see Commercial Fisheries Review, October 1961 p. 11.

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PELAGIC FISH POPULATION SURVEY CONTINUED:

M/V "Alaska" Cruise 61-A-5-Pelagic Fish: The Gulf of California from Tiburon Island to Cape San Lucas and the outer coasts of southern Baja California between Marquis Point and Cedros Island were surveyed (July 21-August 20, 1961) by the California Department of Fish and Game research vessel Alaska. The objectives were (1) to obtain samples of sardines from the Gulf of California for blood genetic and morphometric studies in order to distinguish the relationships of the Gulf sardines to those on the outer Pacific Coast; (2) to determine the amount of recruitment from this year's sardine spawning and to measure the population density of older fish; (3) to sample Pacific mackerel, jack mackerel, and anchovies for age and distribution studies; and (4) to make

collections of other species requested by other investigations.

GULF OF CALIFORNIA: Of the 51 night light stations occupied in the Gulf, all but 3 were along the western (Baja California) side. The vessel scouted 328 miles between stations during which 8 unidentified schools were observed. Scouting visibility was reduced because of bright moonlight. Sea-surface temperatures ranged from 31.2° C. (87.8° F.) at Guaymas to 23.8° C. (74.8° F.) at San Rafael Bay. Most readings ranged between 26° C. (78.8° F.) and 28° C. (82.4° F.).

Sardines were taken at 4 locations: Mangles Point, Coronado Island, Ventana Bay, and Cape San Lucas. Surface temperatures in those areas ranged from 28.9° C. (84° F.) to 27.7° C. (81.9° F.). Live fish, 85 to 110 mm. standard length, from Mangles Point and Coronado Island were delivered alive to U. S. Bureau of Commercial Fisheries personnel for blood genetic tests which indicated that the Gulf sardine is a third distinct subpopulation. An additional 200 were frozen for morphometric studies.

Pacific mackerel were present at 9 stations. Several samples were preserved for study ashore. Juvenile flatiron herring (Harengula thrissina) were very abundant in the southern part of the Gulf. Large numbers of adults were present near shore, but few came to the light.

Pacific Mackerel (Pneumatophorus diego)

OUTER COAST OF BAJA CALIFORNIA: Here, 43 night light stations were occupied. Sardines were present at 4, Pacific mackerel at 6, northern anchovies at 4, and jack mackerel at 4.

All sardines taken were small (95-135 mm.) and appeared to be predominately from the 1961 year-class.

The vessel scouted 234 miles during which 233 anchovy and 2 Pacific mackerel schools were sighted. Anchovies were seen over the entire area. Many additional schools were seen during daytime anchorage.

Sea surface temperatures ranged from 27.05° C. (80.7° F.) at Marquis Point to 14.0° C. (57.2° F.) at Rampiente Point.

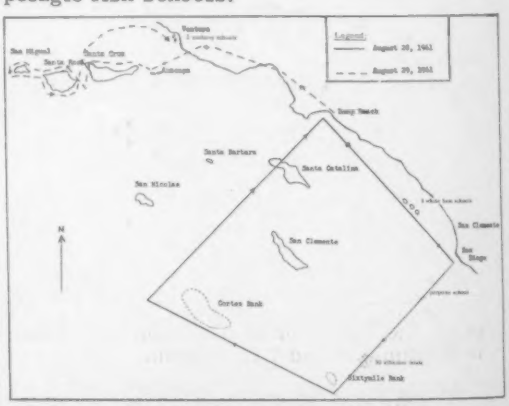
Airplane Spotting Flight 61-9-Pelagic Fish: The inshore area from the United States Mexican border to Point Conception, Calif., was surveyed from the air (August 15, 18-19, 1961) by the Department's Cessna "182" 9042T to determine the distribution and abundance of pelagic fish schools.

Adverse weather limited flying time to only 3 days of the 5 scheduled. Low clouds necessitated a flying altitude of 700 feet or less over most of the survey area. The low cloud ceiling acted as an effective light filter and reduced fish-spotting efficiency.

Only 18 schools, all anchovies, were observed--14 schools were located off Point La Jolla, 2 off Seal Beach, 1 near Huntington Beach, and 1 off Port Hueneme.

Red water was noted off Hueneme and North Island. About 150 sport-fishing boats were observed off Point La Jolla just inshore from the 14 anchovy schools.

Airplane Spotting Flight 61-10-Pelagic Fish: The inshore area from Long Beach to San Diego and the offshore islands and banks of southern California were surveyed from the air (August 28 and 29, 1961) by the Department's Twin Beechcraft N5614D to determine the distribution and abundance of pelagic fish schools.



Twin Beechcraft N5614D airplane spotting flight 61-10.

Low clouds during the morning and afternoon restricted fish-spotting time to less than 3 hours each day. Clouds and cloud

shadows, which reduced spotting efficiency, extended as far seaward as did the flights.

Three compact "balls" of bright flashing white sea bass were observed. Two of these schools were off San Clemente and one off Laguna.

A long, thin column of porpoises (specific identity unknown), estimated over a mile long and containing well over 100 animals, was observed 20 miles southwest of San Diego. The column consisted of no more than 2 animals abreast, some singles, with the individuals and pairs fairly regularly spaced.

About 30 albacore boats were fishing 20 miles southeast of Cortez Bank.

Only a thin band of water along the windward side of the islands was open for fish spotting. The lee sides were obscured by low clouds. Although most of the mainland coast was covered by clouds, 2 small schools of anchovies were observed off Ventura.

Note: Also see Commercial Fisheries Review, October 1961 p. 11.

Columbia River Fisheries

FEDERAL FUNDS TO NORTHWEST STATES FOR FISHERY FACILITIES:

The Department of Interior announced September 1 that Northwest States are to receive $1,250,000 in Federal funds for operation and maintenance of fishery facilities and $770,000 for construction and stream improvement in the current fiscal year (1962) under the Columbia River Fishery Development Program.

The cost for operation and maintenance is $60,000 higher than the $1,190,000 allocated last year to the three participating states. In the 1961/62 operation and maintenance program, Washington will receive $693,000, Oregon $517,000, and Idaho $40,000.

Reportedly, the major portion of the total is for the operation of 8 salmon hatcheries in Washington and 7 in Oregon.

From the $770,000 appropriation for construction, $343,000 will be contracted to Oregon, $261,000 to Idaho, and $166,000 to Washington. Of that total, $310,000 will be used for installation of fish screens to prevent loss of young salmon and steelhead in irrigation diversions and $460,000 for construction of fishways at natural falls and other improvements in natural habitat. The U. S. Bureau of Commercial Fisheries also plans to spend $70,000 for that type of work.

In addition to these funds, $500,000 is being assigned to the investigation of means of improving operational procedures in hatcheries and management of natural areas. Two-thirds will be spent by the states on the study of pond rearing, predation, introduction of new stocks of fish, and fish-marking methods.

Federal Purchases of Fishery Products

DEPARTMENT OF DEFENSE PURCHASES, JANUARY-JULY 1961:

Fresh and Frozen Fishery Products: For the use of the Armed Forces under the Department of Defense, about 2.1 million pounds (value $1,011,000) of fresh and frozen fishery products were purchased in July 1961 by the Military Subsistence Supply Agency. This was higher than the quantity purchased in June by 33.8 percent and 11.6 percent above the amount purchased in July 1960. The value of the purchases in July this year was up about 44.0 percent as compared with June, but was 6.7 percent less than for July a year ago.

Table 1 - Fresh and Frozen Fishery Products Purchased by Military Subsistence Supply Agency, July 1961 with Comparisons

QUANTITY				VALUE			
July		Jan.-July		July		Jan.-July	
1961	1960	1961	1960	1961	1960	1961	1960
(1,000 Lbs.)				($1,000)			
2,131	1,909	13,003	13,649	1,011	1,084	6,322	7,070

During the first 7 months of 1961, purchases totaled 13.0 million pounds (valued at $6.3 million)--a decrease of 4.7 percent in quantity and 10.6 percent in value as compared with the same period in 1960.

Prices paid for fresh and frozen fishery products by the Department of Defense in July 1961 averaged 47.4 cents a pound, 1.5 cents less than the 48.9 cents paid in June and 9.4 cents less than the 56.8 cents paid during July last year.

Canned Fishery Products: Tuna was the principal canned fishery product purchased

Table 2 - Canned Fishery Products Purchased by Military Subsistence Supply Agency, July 1961 with Comparisons

Product	QUANTITY				VALUE			
	July		Jan.-July		July		Jan.-July	
	1961	1960	1961	1960	1961	1960	1961	1960
	(1,000 Lbs.)				($1,000)			
Tuna	1,474	481	4,136	1,930	648	204	1,823	860
Salmon	-	-	2	3	-	-	2	2
Sardine	23	-	113	84	10	-	54	35

for the use of the Armed Forces during July this year. In the first 7 months of 1961, purchases of canned tuna were up 114.3 percent and canned sardines were up 34.5 percent as compared with the same period in 1960.

Note: Armed Forces installations generally make some local purchases not included in the data given; actual total purchases are higher than indicated because local purchases are not obtainable.

Films

NEW MOVIE ON COMMERCIAL FISHERIES OF CHESAPEAKE BAY PLANNED:

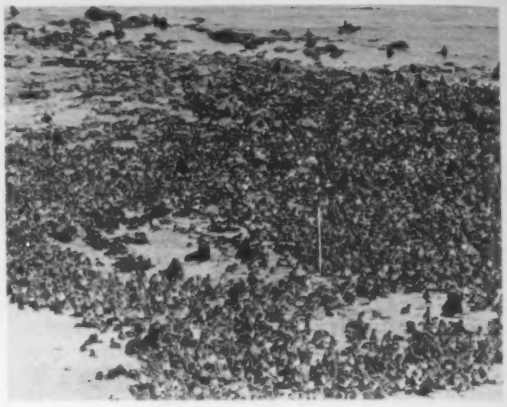
A contract is being let for the production of a 16mm. sound-color motion picture on the commercial fisheries of Chesapeake Bay and its estuaries. The production of this educational market development motion picture is being financed by the States of Maryland and Virginia, and the U. S. Bureau of Commercial Fisheries. This Bureau-produced film, which will be in production about a year and a half, will include such information as the heritage of the Bay area, customs of the people relating to the fishing industry in the area, commercial and sport fishing, and information to stimulate the consumption of Chesapeake Bay fishery products.

Fur Seals

PRIBILOF 1961 HARVEST:

The 1961 fur seal harvest on the Pribilof Islands in Alaska provided 97,091 seal skins. Of these, 82,095 were males. This is the largest annual harvest since 1956 when 126,826 animals were taken. For some years previous to 1956 the annual harvest had averaged about 65,000 3- and 4-year-old bachelor males.

Gross receipts to the United States Government from the sale of Pribilof Islands products (including meal and oil from rendering the carcasses) in the fiscal year ending June 30, 1961, amounted to $2,839,862. The State of Alaska and the United States Government share in the net receipts after fur seal processing costs and the costs of administration of the Pribilof Islands are deducted from the gross receipts. The Alaska Statehood Act provides for payment of 70 percent of the net proceeds to the State of Alaska.



Fur seal harems in dense formation.

In 1956 the practice of taking female seals, which had been stopped in 1911 was reinstituted on the advice of wildlife biologists whose studies indicated that such action was necessary to provide the optimum size of herd and to reduce pup mortality which would, in effect, substitute additional harvest for mortality. For example, in 1957, a total of 74,514 dead pups were counted on St. Paul Island, while in 1958 the pup crop supporting a large part of this year's kill suffered a loss of only 37,740.

The effect of overabundance appears to have resulted in the smaller number of seals which returned to the rookeries in the late 1950's; the effect of the current management practice in herd reduction is beginning to be evident in this year's return of a male harvest above the 65,000 level. An additional harvest of as many as 30,000 female seals will be necessary this fall as part of the management program.

The Pribilof herd, which had dwindled to 125,000 in 1911 when the first fur seal treaty

made management of the Pribilof herd possible by the outlawing of high-seas harvesting, had reached about 1,500,000 animals when the incidence of pup-killing diseases became a problem.

During the 40 years of herd build-up only the surplus males were taken.

The segregation of the young males, the most desirable group for seal skins, is largely accomplished by the polygamous nature of the seal. While seals are born in about equal numbers of male and female, the older bulls maintain harems of from 25 to 100 cows and drive the younger males away from the herd. Thus the males of the younger age groups are automatically segregated. The practice of harvesting the majority of these bachelor males each year permitted adequate numbers of the young males to acquire breeding age--about 7 years--and establish their harems.

The life span of the fur seal is about 20 years and the female begins to bear young at 4 to 6 years of age. The seals spend several months of each year at sea. In late May the old males return to the Pribilof rookeries. The younger males follow soon after. The females arrive early in June and the pups are born soon after the females arrive on the Islands. Each has a single pup in any one year. The average size of a newborn pup is 12 pounds. The nursery season for the new pup is also the mating season for the mother.

The five Pribilof Islands are in the Bering Sea about 200 miles north of the Aleutian chain and about 300 miles west of the mainland. Of the two that are inhabited, the largest is St. Paul Island which is 14 miles in length. St. George Island, 40 miles away, is about 10 miles in length.

Records show that the Russians, who owned the Pribilofs until they came into possession of the United States in 1867 through the Alaska Purchase, had harvested about 2,000,000 seal pelts before 1834. Russia then placed restrictions upon the harvesting and from 1834 until 1867 only 600,000 pelts were taken. Under United States ownership there was a 20-year period in which harvests of 100,000 a year were permitted and in most instances accomplished. This was followed by another 20-year period ending in 1910 when only about 330,000 seal skins were taken. Since 1911, the year in which the original fur seal treaty was signed by Japan, Russia, Great Britain (for Canada), and the United States, sealing has been prohibited on the high seas, and scientific management of the herd has provided for the dramatic increase in herd size and production of skins.

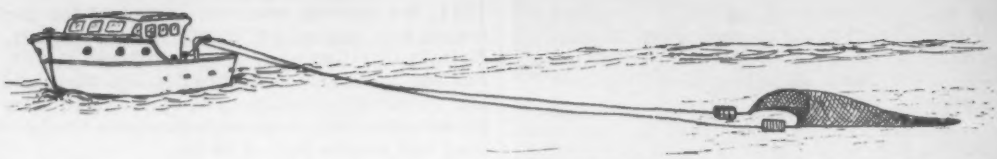
Intensive research is presently under way on the Pribilof Islands and at sea to learn more of the life history and population dynamics of the fur seal. These studies are coordinated through the North Pacific Fur Seal Commission, established under the provisions of the 1957 Interim Convention on Conservation of North Pacific Fur Seals, and are designed to provide information as to the maximum sustainable yield of fur seals, giving due regard to their relation to the productivity of other living marine resources of the area.

Great Lakes Fishery Investigations

LAKE ERIE FISH POPULATION SURVEY CONTINUED:

M/V "Madtom," August 1961: The field activities of the Lake Erie investigations of the U. S. Bureau of Commercial Fisheries during August 1961 consisted of trawl tows conducted periodically at two stations to check on the relationship between the availability of fish and water chemistry. Activities were devoted primarily to 3 day-night series of trawl hauls at Station 4 (off Marblehead) and Station 49 (off Bono) and to the annual week-long cruise to 7 index stations distributed about western Lake Erie. The 16-foot outboard Madtom carried out the trawling at several points near Sandusky and Port Clinton to assess the abundance and growth of young-of-year fish in shallow inshore areas.

During the 3 day-night trawling series, two 10-minute tows were made at each of 3 depths, during the morning, afternoon, and evening (total of 54 tows at each station). Approximately 50 percent of the fish caught were young-of-the-year. Of special interest was the collection of 344 young yellow pike or walleyes at Station 4--far more than recorded for any previous similar series. Large numbers of 2-year-old yellow perch were taken intermittently, along with adult spot-tail and emerald shiners. Changes in



meteorological conditions seemed to have greater influence on fish movements and concentrations than differences in depth or time of day.

The summer index-station cruise served to preserve continuity and the opportunity for comparison with similar operations in 1959 and 1960. Two trawl tows were taken at each of the 7 stations and turbidity, pH, temperature, alkalinity, and oxygen content of the water were determined. Samples of plankton and bottom fauna were collected for later study.

Growth rates for most young-of-year fish were slightly below the averages for recent years. Yellow pike were about 4.6 inches long in early August and had increased to 6.4 inches by the end of the month. The average total length in inches of young-of-the-year of other species, in late August, were as follows: alewife, 3.7; gizzard shad, 3.9; trout-perch, 2.9; emerald shiner, 2.3; spottail shiner, 2.4; channel catfish, 1.7; sheepshead, 2.2; white bass, 3.8; and yellow perch, 2.9. Judging by catches in comparable trawl tows in recent years, most species were believed to have had a fairly successful hatch and survival in 1961.

Water temperatures in August averaged 75° F. in the western end of the lake and 76° F. in Sandusky Bay. The cause of the sizable mortality of yellow perch which occured in the open lake during July and has since subsided, is still unknown. A deficiency of dissolved oxygen continued in some deep-water areas, but the condition was not extensive or critical during August.

Note: Also see Commercial Fisheries Review, October 1961, pp. 17-18.

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LAKE MICHIGAN FISH POPULATION SURVEY CONTINUED:

M/V "Cisco" Cruise 6: The chub (Leucichthys sp.) population survey in Lake Michigan was continued (August 29-September 9, 1961) by the U. S. Bureau of Commercial Fisheries research vessel Cisco.

The first part of cruise 6 (August 29-September 9, 1961) was devoted to routine fishery and limnological sampling in northern Lake Michigan, and the latter portion was spent experimenting with a midwater trawl. Despite almost continuous choppy seas for the first 5 days, only a small amount of the scheduled work had to be cancelled.

Regular gangs of nylon gill nets (50 feet each of $1\frac{1}{4}$- and $1\frac{1}{2}$-inch mesh, and 300 feet each of 2-, $2\frac{3}{8}$-, $2\frac{1}{2}$-, $2\frac{3}{4}$-, 3-, $3\frac{1}{2}$-, and 4-inch mesh) were set at 25 and 50 fathoms off Frankfort, Mich., and Sturgeon Bay, Wis. The catch off Frankfort was moderate at 25 fathoms and light at 50 fathoms; off Sturgeon Bay both catches were very light.

Regular 30-minute bottom tows were made with a 50-foot balloon trawl at 15, 25, 35, and 50 fathoms off Manistique, Mich., and at 30 fathoms in Little Traverse Bay east of Charlevoix, Mich. Chub catches at the 4 depths off Manistique were 88, 103, 374, and 161 pounds, respectively. The catch in Little Traverse Bay was 111 pounds. Few chubs other than L. hoyi were taken. The only sizable catches of other species were 83 pounds of alewives and 47 pounds of smelt (at 15 fathoms off Manistique). A whitefish with a fresh lamprey wound was caught in the 35-fathom tow off Manistique. This depth seemed unusually great for whitefish, but the fish may have been driven into deep water by the lamprey attack. Several trawl tows of short duration in Little Traverse Bay brought up live L. hoyi, from which blood samples were taken for electrophoresis studies.

A modified 40-foot British Columbia midwater trawl was towed off Charlevoix at various depths, from near the surface to near bottom. Most of the work was done over a 50- to 60-fathom bottom, but some tows were made in areas 20 and 30 fathoms deep. Tows were made at night as well as during the day. A device for telemetering depth and temperature was attached to the footrope. The electric cable used with the device was separate from the towing warps, and was wound on a hand-operated reel. The equipment functioned well

(except for a tendency for the depth-recording unit to drift slightly), until a wire broke inside the electric cable. All catches were small, and consisted mostly of chubs (mature) at deeper levels, and alewives and smelt (adults and young of the year of both species) at medium and upper levels. The 0-group fish were especially well represented in shallow tows made above the thermocline at night. One such tow took 127 and 86 young-of-the-year smelt and alewives, respectively; two tows at the same depth and location in the daytime took no fish. Other catches of special interest included a rather pale 14.7-inch lake trout (1959 year-class, planted in northern Lake Michigan in May 1960) with 2 fresh lamprey scars, at 19

Sea lamprey feeding on a trout.

fathoms over a 56-fathom bottom; a logperch at 57 fathoms (the net struck the bottom on this tow); and a ninespine stickleback near bottom at 56 fathoms.

Limnological collections were made at 40-fathom stations off Manistique, Charlevoix, Frankfort and Sturgeon Bay, and at midlake between Manistique and Charlevoix, and at 144 fathoms between Frankfort and Sturgeon Bay. Surface water temperatures were mostly about 20° C. (68° F.) except near shore off Sturgeon Bay, where temperatures as low as 8.6° C. (47.5° F.) were recorded in an upwelling. The extent of the upwelling was not determined, but a surface temperature of 13.0° C. (55.0° F.) was noted near Summer Island, 62 miles north of Sturgeon Bay. The highest record was 22.4° C. (72.4° F.). Secchi disc readings were low (9-22 feet) although there was no great amount of net plankton.

Note: Also see Commercial Fisheries Review, October 1961 p.18.

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WESTERN LAKE SUPERIOR FISHERY SURVEY CONTINUED:

M/V "Siscowet" Cruise 5: The objectives of cruise 5 (August 7-14, 1961), to Whitefish Bay, Lake Superior, were to locate lake-dwelling sea lamprey ammocetes and to obtain information on the abundance and distribution of lake trout, whitefish, lake herring, and chubs, according to the U. S. Bureau of Commercial Fisheries Biological Laboratory at Ann Arbor, Mich.

An iron, pyramidal-shaped anchor dredge (2-feet wide, 9-feet long), on loan from the Fisheries Research Board of Canada, was towed by the Bureau's research vessel Siscowet near the mouths of Bear Creek and Tahquamenon and Betsy Rivers. A total of more than 20 tows (average duration, 18 minutes) in water 8 to 12 feet deep yielded no sea lamprey ammocetes, although 2 brook lamprey ammocetes were caught. Thousands of fingernail clams (a very important item in the diet of whitefish) were taken by the dredge.

In spite of high winds during the entire cruise, experimental fishing gear was operated at the following locations: 1 mile southeast of Whitefish Point; 2 miles east of the Betsy River; 7 miles east of the Betsy River; and 4 miles northeast of Tahquamenon Island.

Trawl catches were light. Only 3 lake trout (all fin-clipped) were captured, in addition to small numbers of smelt, sculpins, sticklebacks, and chubs.

Four standard gangs of gill nets (150 feet of 1-inch mesh and 300 feet each of $1\frac{1}{2}$-, $2\frac{1}{2}$-, 3-, $3\frac{1}{2}$-, 4-, $4\frac{1}{2}$-, and 5-inch mesh) were set at depths ranging from 15 to 41 fathoms.

Of the 22 lake trout taken in gill nets, 16 (73 percent) were fin-clipped. All marked lake trout caught during cruise 5 were from the plant made from shore at Whitefish Bay in June 1961.

In an effort to obtain more information on the water currents of eastern Lake Superior, glass drift-bottles were released at three localities: 5 miles east of Copper Harbor; just northwest of Crisp Point; and northwest of the Big Two Hearted River.

Surface water temperatures varied only between 63.7° F. and 65.5° F; bottom temperatures remained at about 40° F.

M/V "Siscowet" Cruise 6: Studies during cruise 6 were conducted (August 21-30, 1961) at Keweenaw Bay, Traverse Bay, and Isle Royale, Mich., and Thunder Bay, Ontario. The work in Keweenaw Bay included attempts to locate lake-dwelling sea lamprey ammocetes and the collection of data on the abundance and distribution of various species of fish, on the comparative survival of lake trout planted from shore and by boat, and on the contribution of hatchery-reared lake trout to native stocks. The objectives at Isle Royale and Thunder Bay were to compare the relative abundance of lake trout with previous years' catches and to collect various forms of chubs for morphological studies.

An anchor dredge, borrowed from the Fisheries Research Board of Canada, was towed near the mouths of the Falls, Big Huron, and Ravine Rivers, in water 8 to 23 feet deep. No sea lamprey ammocetes were taken in a total of approximately 25 tows (average duration, 10 minutes). A few sculpins, brook sticklebacks, and mayfly larvae were caught.

Standard gangs of experimental gill nets (150 feet of 1-inch mesh and 300 feet each of $1\frac{1}{2}$-, 2-, $2\frac{1}{2}$-, 3-, $3\frac{1}{2}$-, 4-, $4\frac{1}{2}$-, and 5-inch mesh) were set in Keweenaw Bay north of the Huron Islands, northwest of Point Abbaye, and southeast of the entrance of the Portage Ship Canal. The average weight of the 52 lake trout taken in the gill nets was 0.9 pound; 18 (35 percent) were fin-clipped.

Nine 10-minute trawl tows were made in Keweenaw Bay, midway between Baraga and L'Anse and off Pequaming, at depths ranging from 18 to 42 fathoms. A total of 167 lake trout were captured, of which 165 were fin-clipped. Of these hatchery-reared fish, 127 had been stocked as yearlings in Keweenaw Bay in June 1961 and 38 in June 1960. Closely comparable numbers of recoveries in the latter group originated from boat plantings (20) and shore plantings (18). (In 1960, about equal numbers of yearling lake trout were planted in Keweenaw Bay by boat and from shore; in 1961, all plantings were from shore.) The lake trout recaptured from the 1961 plant averaged 0.7 inch longer than at the time of release in June; the trout from the June 1960 plant had grown 2.9 inches. In addition to the lake trout taken by trawling in Keweenaw Bay, small numbers of smelt, pygmy whitefish, sculpins, ninespine sticklebacks, and chubs were caught.

Three 10-minute tows in Traverse Bay at 23, 32, and 41 fathoms yielded only 1 lake trout (from the 1961 plant), and a few smelt, pygmy whitefish, sculpins, and small herring.

Only 1 of the 125 lake trout caught was fin-clipped. Samples of blood and flesh were taken from a number of "humper" lake trout caught at 30 fathoms south of Mott Island, for electrophoretic and fat-analysis studies. Seventeen of the lake trout caught near Thompson Island were tagged and released.

A gang of 5 gill nets ($2\frac{1}{4}$- and $2\frac{1}{2}$-inch mesh) set at 18 fathoms in Thunder Bay took 15 lake trout, 19 L. hoyi, 3 L. zenithicus, and 18 L. reighardi dymondi (tentative identification), a subspecies reported to occur along the north shore of Lake Superior. Blood samples were collected from the dymondi for electrophoretic studies.

Drift bottles were released northeast of Yellow Dog Point, north of Salmon Trout Point, and just south of Keweenaw Point and Manitou Island. It was hoped that returns of the bottles would add to the knowledge of Lake Superior currents.

Surface water temperatures during the cruise ranged from 60.8° F. in Thunder Bay to 69.4° F. in Keweenaw Bay.

Note: Also see Commercial Fisheries Review, October 1961 p. 19.

CORRECTION

The sketch of the sheepshead (Archosargus probatocephalus) which appeared in the September 1961 Commercial Fisheries Review, p. 31, was inserted in error as part of the article "Lake Erie Fish Population Survey Continued." Since the article referred to fresh-water sheepshead, drum, or gaspergou (Aplodinotus grunniens Rafinesque), a sketch of the latter species should have been inserted.

Gulf Exploratory Fishery Program

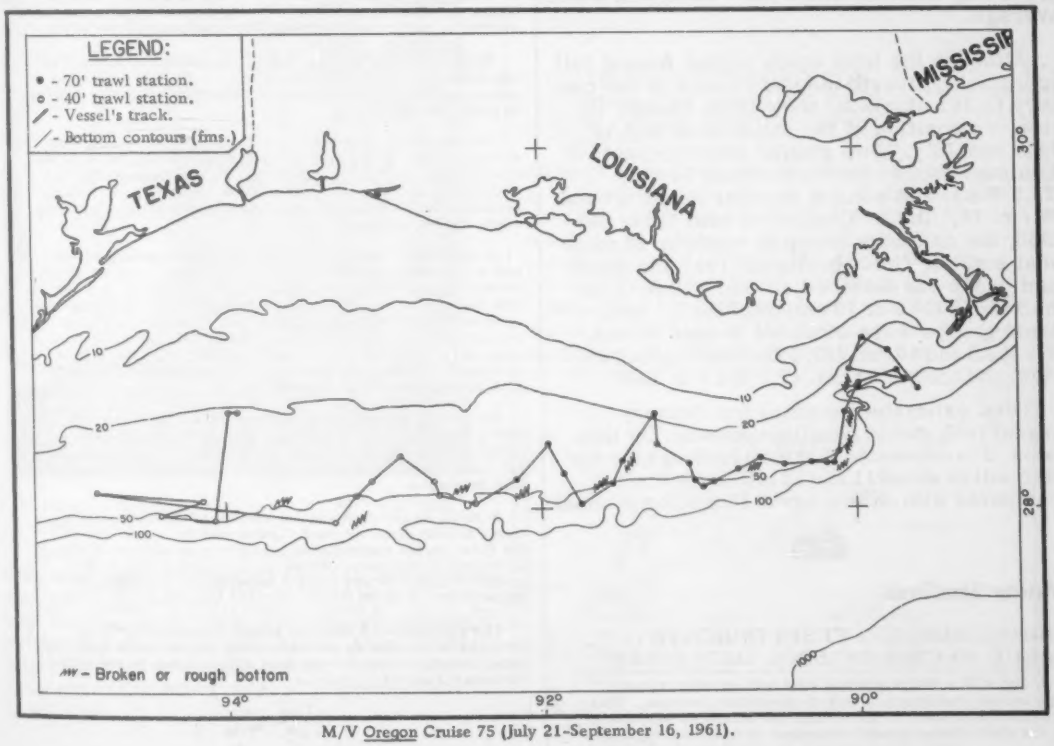
MIDWATER TRAWLING, ESCAPEMENT BEHAVIOR OF PELAGIC FISH, AND SHRIMP EXPLORATORY FISHING:

M/V "Oregon" Cruise 75: Obtaining performance data on experimental midwater trawls, taking motion pictures of the escapement behavior of various pelagic fish, and exploratory fishing for shrimp west of the Mississippi Delta were the specific objectives of the July 21-September 16, 1961, cruise of the U. S. Bureau of Commercial Fisheries exploratory fishing vessel Oregon.

During the first three phases of the cruise, performance data were obtained on several flotation devices, depressors, and doors that were used with two experimental trawls. An inverse relation between speed and vertical net opening was observed. This observation is consistent with prior test findings with midwater trawls of other designs. At towing speeds of 1.4-1.5 knots, the trawls displayed 30-43 percent greater vertical spread than they did at the assumed optimum speed (based on balanced configuration of the trawl) of 3.1-3.6 knots. Greater vertical spread was accompanied by a sacrifice in horizontal spread.

A headrope-mounted echo-sounder transducer was used in conjunction with two remote-controlled motion picture cameras mounted on the headrope and in the funnel. A total of 1,400 feet of 16 mm. film was taken of net configuration and fish reactions.

The fourth phase consisted of eight days of exploratory shrimp trawling, conducted west of the Mississippi Delta at the request of a group of Louisiana shrimp producers. As requested, 41 trawling stations were completed in depths of 30 to 60 fathoms between Barataria Bay and Sabine Pass. No commercially-important concentrations were located although large (15-20 count) shrimp were taken in all depths fished. The best catches of shrimp made were confined to the 30-fathom range south of Barataria



M/V Oregon Cruise 75 (July 21-September 16, 1961).

Bay and Ship Shoal. Beyond that depth broken or rough bottom restricted trawling activities. Fish and shrimp specimens from each station were preserved for further study by the staff of the Galveston Fishery Biological Laboratory.

Hawaii

SKIPJACK TUNA LANDINGS, JANUARY-AUGUST 1961:

Landings of skipjack tuna (mostly 21-22 pound size) in Hawaii during August 1961 were about 1,420,000 pounds or 1,010,000 pounds under the landings for the preceding month. The August 1961 landings were about 0.3 million pounds below the 1948-58 average landings for the month. This decline in landings apparently coincided in time with a change in the water circulation pattern.

This decline is in marked contrast to the preceding months, which have been well above average.

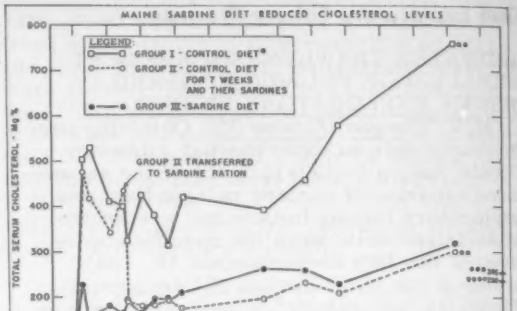
Although the total catch during August fell appreciably, length measurements at the cannery (3,361 skipjack) show little change in size composition of the catch from that of June and July. Two groups were present, a dominant group centered around 74 cm. (21.5 lbs.), and a much smaller group around 65 cm. (4.1 lbs.). Compared with 1959 and 1960, the dominant group is made up of somewhat smaller fish. In August 1959 the dominant group was centered around 80 cm. (27.9 lbs.) and in 1960 at 79 cm. (26.9 lbs.). Additional groups were centered around 46 cm. (4.4 lbs.) and 64 cm. (13.2 lbs.) during August 1959, and around 53 cm. (7.0 lbs.) in 1960.

Total estimated landings for January-August 1961 were 9.5 million pounds. On this basis, it is estimated that total landings for the year will be about 11 and 12 million pounds (compared with an average of 10 million pounds).

Maine Sardines

ANIMAL FEEDING TESTS INDICATE VALUE AS CHOLESTEROL DEPRESSANT:

A diet with a Maine sardine base will greatly reduce high serum cholesterol levels in laboratory animals. This statement was made to more than 400 delegates who attended the FAO International Conference on Fish in Nutrition,


MAINE SARDINE DIET REDUCED CHOLESTEROL LEVELS
LEGEND:
GROUP I - CONTROL DIET*
GROUP II - CONTROL DIET FOR 7 WEEKS AND THEN SARDINES
GROUP III - SARDINE DIET
GROUP II TRANSFERRED TO SARDINE RATION
TOTAL SERUM CHOLESTEROL - mg %
WEEKS
* Control Ration - Commonly used non-liquid type of household fat base.
** Age equivalent to 50-55 years of humans.
*** Average cholesterol level of humans 50 years of age.
**** Same for 60 years of age.

Fifty-five week tests by famous research organization shows that feeding of Maine sardines to laboratory animals drastically reduced high serum cholesterol levels.

September 18-27, 1961. These findings were reported by Dr. S. A. Miller of the Massachusetts Institute of Technology who said that they came as the result of a recently-completed 55-week series of feeding tests.

He further stated that a study of the nutritive values of Maine sardines showed that it is a good source of essential nutrients, particularly protein and unsaturated fatty acids.

Blood cholesterol is currently considered by many leading physicians and nutritionists to be definitely related to numerous serious heart diseases affecting or killing millions of people annually.

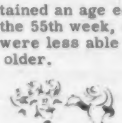
The Maine Sardine Council's Executive Secretary, who was a member of the official United States delegation to the Conference, said that a number of leading food and health authorities considered the results of the tests to be so impressive that they had recommended that a similar study be conducted on humans.

According to Miller, examination of the animals at the end of the tests showed the cholesterol level of those on the sardine diet to be less than half as high as those on a control diet with a highly saturated fat base of a commonly-used non-liquid type of household fat. Furthermore, the researcher said, the study showed that when a group of animals on the control diet for seven weeks was transferred to the sardine ration their cholesterol level dropped by more than 60 percent almost immediately.

Numerous experts have long contended that foodstuffs with a high saturated fat content tend to favor increased cholesterol levels in humans while those with unsaturated fat content, such as Maine sardines, appear to help control this substance.

A much larger than normal amount of cholesterol was added to both diets for each feeding and the serum levels for those on the control rose steadily to an abnormal high at the end of the tests. Those on the sardine ration enjoyed a steady low and more normal level, according to Miller.

The animals used attained an age equivalent of 50 to 55 years in humans by the 55th week, and the tests indicated that their bodies were less able to adapt to the added cholesterol as they got older.



North Atlantic Fisheries Exploration and Gear Research

OTTER TRAWLS WITH POLYPROPYLENE AND CONVENTIONAL HEAD ROPES TESTED:

M/V "Delaware" Cruise 61-14: Whether or not a standard No. 41 otter trawl equipped with a polypropylene head rope is more effective in fishing operations than the conventional manila-wire combination head rope was the objective of an August 24-September 3, 1961, cruise by the U. S. Bureau of Commercial Fisheries exploratory fishing vessel Delaware. This cruise was the third in a series designed to test different fiber materials in ropes and netting in the otter trawls in use by the New England trawlers.

Mending a tear in polypropylene netting, M/V Delaware Cruise 61-14.

During the cruise, a total of 98 1-hour tows was made using two No. 41 otter trawls that were rigged and fitted identically, except for the head rope, with polypropylene netting top sections and ropes. One trawl was rigged with a combination wire-rope head rope; the other with a polypropylene head rope.

All tows were made in a 10-mile-square area on Georges Bank. Both trawls were used with the same rollers and doors and were fished from the starboard side, alternating trawls every 2 tows on a "round-the-clock" basis.

All fish of commercially-valuable species were counted and measured. Results showed no significant difference in catch rates between the two trawls.

Table of Catch Results on Delaware Cruise 61-14

Species	Combination Head rope (49 Tows)	Polypropylene Head rope (49 Tows)
	Pounds	Pounds
Haddock	6,644	6,766
Yellowtail	543	585
Lemon Sole	112	107
Whiting	162	163

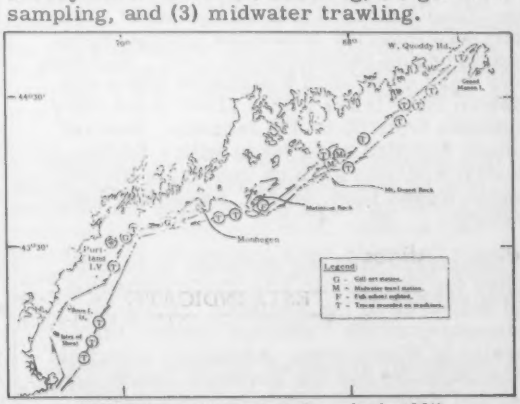
From the data collected during the cruise, recommendations cannot be made regarding the desirablility of one head rope over another. Further testing of these nets is currently under way by commercial fishing vessels with Bureau cooperation.

Note: Also see Commercial Fisheries Review, July 1961 p. 23 and April 1961 p. 26.

* * * * *

EXPLORATORY FISHING FOR CANNING-SIZE HERRING OFF MAINE COAST UNSUCCESSFUL:

M/V "Delaware" Cruise 61-15: In an attempt to relieve the shortage of canning-size herring available to the Maine sardine canning industry, the U. S. Bureau of Commercial Fisheries exploratory fishing vessel Delaware surveyed the area offshore from Gloucester, Mass., to West Quoddy Head, Me., from September 7-13, 1961. The survey consisted of (1) scouting, (2) gill-net sampling, and (3) midwater trawling.



M/V Delaware Cruise 61-5 (Sept. 7-13, 1961).

The gill-net stations (see chart) resulted in only small catches of herring.

The midwater trawl was first set on apparently good depth-recorder indications but resulted in catching only approximately 25 pounds of very small or "brit" herring. These fish were of a size which allowed them to pass through the $1\frac{1}{4}$-inch mesh of the cod end. After adding a $\frac{1}{2}$-inch mesh liner in the cod end, the trawl was set the following day on comparable tracings. This tow resulted in 500 pounds of small (1 inch long) euphausid shrimp, mixed with a number of small herring and whiting.

Scouting with sonic depth-recording equipment resulted in additional tracings. These indications were of comparable density to those previously sampled; the existing circumstances did not make midwater trawl sets desirable.

A school of small herring were visually sighted several miles east-southeast of Matinicus Rock (see chart). With the exception of the few herring taken by the gill nets, all herring observed were too small, by existing standards, for commercial use.

North Pacific Exploratory Fishery Program

SURVEY OF DEEP-WATER MARINE FAUNA OFF MOUTH OF COLUMBIA RIVER:

M/V "Commando" Cruise 2: The second of a series of cruises designed to survey the deep-water marine fauna in the area adjacent to the mouth of the Columbia River was completed by the U. S. Bureau of Commercial Fisheries chartered fishing vessel Commando on September 22, 1961. Eighteen tows were made with a standard 400-mesh eastern otter trawl with a small mesh liner at depths from 50 to 475 fathoms. Several bottom samples were taken with a Smith-McIntyre bottom grab on loan from the Bureau's Woods Hole, Mass., Biological Laboratory.

Samples of fish and shellfish were collected for the Atomic Energy Commission and delivered to the Radiation Biological Laboratory at the Fisheries Center, University of Washington. Additional samples were collected for the Bureau's Technological and Biological Laboratories in Seattle.

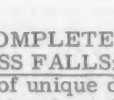
In cooperation with the Oregon Fish Commission, 391 Dover sole caught in depths from 104 to 400 fathoms were tagged with Peterson discs and released.

Commercial species of fish encountered during the cruise included halibut (Hippoglossus stenolepsis), sablefish (Anaplopoma fimbria), Dover sole (Microstomus pacificus), rex sole (Glyptocephalus zachirus), petrale sole (Eopsetta jordani), turbot (Atheresthes stomias), hake (Merluccius productus), and several species of rockfish (Sebastodes). Dover sole and sablefish were found throughout the entire depth range surveyed. The catch per hour of sablefish ranged from 30 to 450 pounds with the greatest catches being made at 300 and 350 fathoms. The greatest catch of Dover sole was made at 50 fathoms where 1,300 pounds were taken in a one-hour tow. Ocean perch (Sebastodes alutus) were encountered from 75 to 275 fathoms with a one-hour tow at 125 fathoms yielding 6,000 pounds. Large concentrations of hake were found down to 200 fathoms including a one-hour haul at 50 fathoms which yielded 6,000 pounds.

Invertebrates were conspicuous by their absence from the catches. No large concentrations of sea urchins were found and the numbers of other invertebrates were greatly reduced. Tanner crabs (Chionoecetes tanneri) were found from 250 to 475 fathoms with the greatest concentration occurring at 350 fathoms where 190 pounds were taken in a one-hour tow. Large males again occupied the inshore areas with egg-carrying females remaining deeper.

Unusual fish and invertebrate species encountered in this deep-water survey were similar to those found on the first survey.

Note: Also see Commercial Fisheries Review, October 1961 p. 24 and September 1961 p. 35.



Oregon

NEW FISHWAY COMPLETED AT LOOKINGGLASS FALLS:

A new fishway of unique design has been completed on Lookingglass Creek, a tributary of the Grande Ronde River in Union County, Ore., the Director of Engineering for the Oregon Fish Commission announced on September 22, 1961.

The Denil (De neel') type fishway, as it is called, is the second of its kind in the State and is located at Lookingglass Falls about 2 miles upstream from the mouth of Lookingglass Creek. The falls are of the cascade-type (rather than sheer drop) which salmon and steelhead are able to navigate during favorable high-water periods. Frequently, however, low water keeps the fish from reaching several miles of prime spawning grounds. With the new fishway, the falls will be passable at all stages of flow.

Baffles are so arranged on the fishway that water currents will flush leaves, twigs, and other debris through without allowing accumulation. This feature will greatly reduce the normal amount of maintenance necessary to keep the facility at peak operating capacity, thus eliminating the need for an attendant to be present at all times. The Denil fishway is therefore suited for isolated locales such as Lookingglass Falls where it is not practical to keep an attendant.

The 60-foot long, 6-foot deep, and 4- to 6-foot wide reinforced concrete fishway (constructed with funds provided by Columbia River Fishery Development Program of the U. S. Bureau of Commercial Fisheries) was completed more than a month ahead of schedule. This structure is steeper than most fishways, rising 1 foot for each 6 feet in length--necessary to insure turbulent water, a major factor in the self-cleaning feature. Fish are still able to negotiate the current with ease, even with flows up to 30-feet per second. However, these fishways are designed for falls of moderate height only because no resting areas in the fishway can be provided. The other Denil-type fishway in Oregon is operated by the U. S. Forest Service at the outlet of Suttle Lake and was constructed on the recommendation of the Oregon Fish Commission.

Oysters

LONG ISLAND SOUND OBSERVATIONS ON SPAWNING AND SETTING:

As of September 6: As was predicted in the observations as of August 17, 1961, the disappearance of "red water" organisms from Long Island Sound resulted in better survival of oyster larvae and heavier setting. Nevertheless, regardless of the improvement in the water condition, the intensity of setting was very light at most of the stations as of September 6, 1961. To that date, New Haven Station #5 and two recently-established Bridgeport Stations #21 and #22 were the only ones where setting was approaching an intensity of commercial significance, provided that the young oysters survive, the U.S. Bureau of Commercial Fisheries Biological Laboratory, Milford, Conn., reports. The Laboratory was especially concerned about the extremely poor setting at Bridgeport Station #10, which for years has been one of the best setting areas of the Sound.

The plankton samples collected August 31 again were relatively poor in oyster larvae. Nevertheless, since one-third of all recently-set oysters on the collectors taken out of the water on August 31 were less than a day old, setting was expected to continue.

Starfish setting still continued but remained light. Again, the Bridgeport stations were leading in the number of recently-set starfish. Unfortunately, the starfish that set earlier in the summer have survived in comparatively large numbers, have shown a rapid increase in size, and are presenting quite a problem to the oyster industry, especially in the Bridgeport area. (Bulletin No. 6, September 6, 1961, issued by the Milford Biological Laboratory.)

As of September 21: Clearing of the Long Island Sound water from "red water" organisms observed early in September resulted, as expected, in a better setting of oysters. However, setting of increased intensity continued only a few days and was especially pronounced at three Bridgeport stations. Since that time, it has become erratic and generally light, some of the stations showing no set whatsoever, the U. S. Bureau of Commercial Fisheries Biological Laboratory, Milford, Conn., reported as of September 21, 1961.

Although setting was still in progress in all areas it is rather doubtful that the new set will add significantly to the numbers that have already been recorded. Only at four stations did the season's set approach commercial value. It is possible that one station, which was established late in the season, also collected a light commercial set.

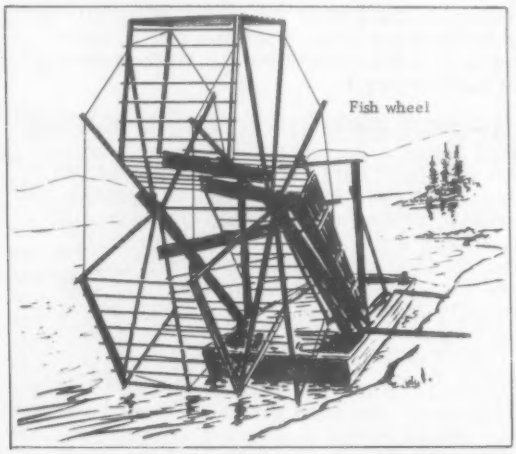
Setting of starfish continued. However, it remained light and at some stations no re-

cently set starfish were recorded from August 31 to September 18. It virtually ceased during the same period at most Milford and New Haven stations, while in the Bridgeport area a few recently set individuals were found at all stations.

Salmon

PINKS TAGGED TO DETERMINE MIGRATION PATTERNS AND SIZE OF RUNS:

A pink salmon tagging program in five major streams tributary to Puget Sound was conducted by the Washington State Department of Fisheries as part of a joint investigation with the Fisheries Research Board of Canada and the International Pacific Salmon Fisheries Commission during the 1961 fishing season. Tagging operations by the Fisheries Research Board of Canada were conducted off Cape Flattery beginning early in July 1961 and the International Pacific Salmon Fisheries Commission tagged pink salmon in the Fraser River.



The Washington agency gathered pink salmon by beach seines in the lower reaches of the five streams (Skagit, Nooksack, Snohomish, Stillaguamish, and Dungeness Rivers) and by one fish wheel in the Skagit River. Salmon were tagged and released to continue their migration journeys. Later, spawning grounds were checked for tagged to untagged pink salmon ratios from which stream population determinations can be made. This total, added to the 1961 pink salmon catch, will give a good indication of the run of this species in Puget Sound.

The three-way pink salmon tagging program designed to gain more knowledge on migration patterns and size of runs, etc. was begun in 1960.

Sardines

CALIFORNIA LANDINGS DOWN 41 PERCENT THROUGH SEPTEMBER 1961:

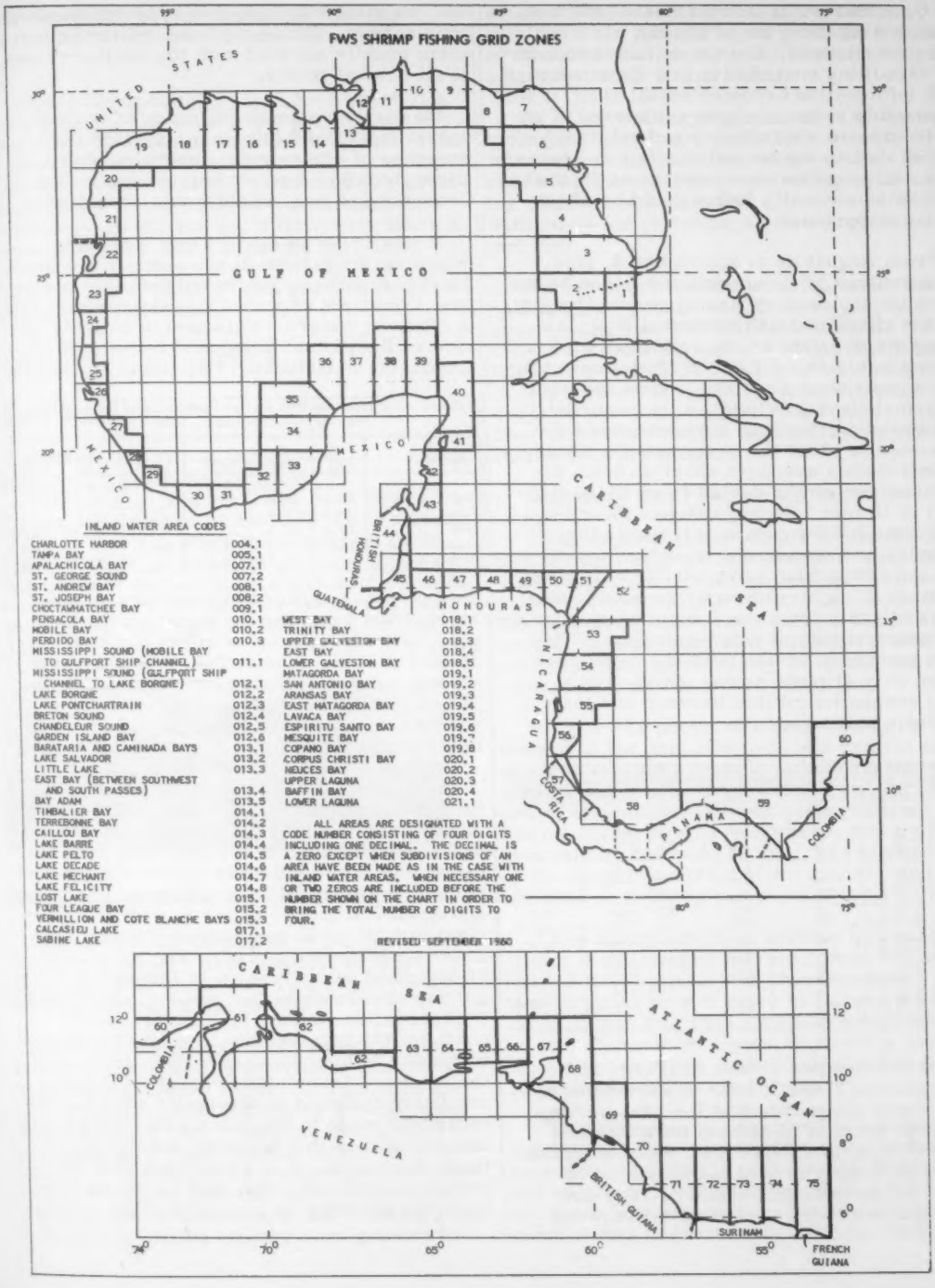
California sardine landings this year through September totaled only 7,882 tons, a decrease of 5,406 tons or 41 percent as compared with the 1960 landings for the same period, and were only 21 percent of the January-September 1958 catch of 37,297 tons. Comparison with 1959 is not possible, since the Southern California sardine fleet was tied up during September of that year in an ex-vessel price dispute.

Sardines have disappeared from the Central California area this year, and only 1,400 tons have been trucked to Monterey canners from Southern California waters this season through September 30. A year ago those canners had received 2,915 tons to the same date, and 11,330 tons in the same period during 1958.

Shrimp

GULF OF MEXICO SURVEY INDICATES LOW LEVEL OF ABUNDANCE OVER WIDE AREA:

In order to make systematic observations of shrimp availability on the continental shelf in the Gulf of Mexico from the Mississippi River Delta to the Rio Grande River, the Galveston (Texas) Biological Laboratory of



INLAND WATER AREA CODES

CHARLOTTE HARBOR	004.1
TAMPA BAY	005.1
APALACHICOLA BAY	007.1
ST. GEORGE SOUND	007.2
ST. ANDREW BAY	008.1
ST. JOSEPH BAY	008.2
CHOCTAWHATCHEE BAY	009.1
PENSACOLA BAY	010.1
MOBILE BAY	010.2
PERDIDO BAY	010.3
MISSISSIPPI SOUND (MOBILE BAY TO GULFPORT SHIP CHANNEL)	011.1
MISSISSIPPI SOUND (GULFPORT SHIP CHANNEL TO LAKE BORGNE)	012.1
LAKE BORGNE	012.2
LAKE PONTCHARTRAIN	012.3
BRETON SOUND	012.4
CHANDELEUR SOUND	012.5
GARDEN ISLAND BAY	012.6
BARATARIA AND CAMINADA BAYS	013.1
LAKE SALVADOR	013.2
LITTLE LAKE	013.3
EAST BAY (BETWEEN SOUTHWEST AND SOUTH PASSES)	013.4
BAY ADAM	013.5
TIMBALIER BAY	014.1
TERREBONNE BAY	014.2
CAILLOU BAY	014.3
LAKE BARRE	014.4
LAKE PELTO	014.5
LAKE DECADE	014.6
LAKE MECHANT	014.7
LAKE FELICITY	014.8
LOST LAKE	015.1
FOUR LEAGUE BAY	015.2
VERMILLION AND COTE BLANCHE BAYS	015.3
CALCASIEU LAKE	017.1
SABINE LAKE	017.2
WEST BAY	018.1
TRINITY BAY	018.2
UPPER GALVESTON BAY	018.3
EAST BAY	018.4
LOWER GALVESTON BAY	018.5
MATAGORDA BAY	019.1
SAN ANTONIO BAY	019.2
ARANSAS BAY	019.3
EAST MATAGORDA BAY	019.4
LAVACA BAY	019.5
ESPIRITU SANTO BAY	019.6
MESQUITE BAY	019.7
COPANO BAY	019.8
CORPUS CHRISTI BAY	020.1
NUECES BAY	020.2
UPPER LAGUNA	020.3
BAFFIN BAY	020.4
LOWER LAGUNA	021.1

ALL AREAS ARE DESIGNATED WITH A CODE NUMBER CONSISTING OF FOUR DIGITS INCLUDING ONE DECIMAL. THE DECIMAL IS A ZERO EXCEPT WHEN SUBDIVISIONS OF AN AREA HAVE BEEN MADE AS IN THE CASE WITH INLAND WATER AREAS. WHEN NECESSARY ONE OR TWO ZEROS ARE INCLUDED BEFORE THE NUMBER SHOWN ON THE CHART IN ORDER TO BRING THE TOTAL NUMBER OF DIGITS TO FOUR.

the U. S. Bureau of Commercial Fisheries expanded its program of shrimp research this past summer. Once a suitable procedure for expediting compilation and distribution of such information becomes established, it will be possible to keep industry informed of up-to-the-minute whereabouts and relative density of shrimp concentrations in this general area. Information on conditions at depths beyond those normally fished could be of particular importance.

From August 28 to September 8, 1961, three cruises off Louisiana and Texas by the Bureau's exploratory fishing vessel Oregon and the chartered fishing vessel Belle of Texas yielded data on the availability of shrimp (table 1). A total of 72 stations, two-thirds positioned at depths beyond the zone of normal fishing activity, were occupied. All coastal (statistical) subareas were represented to about the same extent. Hauls at each station averaged about an hour in duration; net widths varied from 60/80 (balloon) to 40 feet. Shrimp catches (heads-on) were adjusted for comparative and other purposes to a standard 3-hour haul and 45-foot net. Understandably, all 72 hauls were not made at night, although this would have been desirable from the standpoint of improving comparability of catch-rate data. The short amount of cruise time (11 days) permitted only 31 night hauls, and they were about evenly distributed between shallow- and deep-water stations.

Table 1 - Cruise Data, M/V Oregon and M/V Belle of Texas, August 28-September 8, 1961

Statistical Area	Depth Range	Hauls	Average Duration of Haul	Catch Per 3-Hour Haul		Dominant Size (heads-off)	
				Brown	White	Brown	White
	Fms.	No.	Mins.	(Boxes--heads-on 1/)		..(Count Per. Lb.)..	
Louisiana:							
13	0-25	2	45	0.26	-	26-30	-
	25-60	5	60	0.07	-	21-25	-
14	0-25	1	60	0.01	-	41-50	-
	25-60	10	60	0.05	-	10-15	-
15	0-25	1	60	0.36	-	41-50	-
	25-60	8	54	0.06	-	10-15	-
16	0-25	0	-	-	-	-	-
	25-60	5	54	0.02	-	10-15	-
17	0-25	4	60	0.14	0.01	15-20	15-20
	25-60	6	60	0.07	-	10-15	-
Texas:							
18	0-25	5	60	0.13	0.02	31-40	15-20
	25-60	4	65	0.03	-	10-15	-
19	0-25	5	60	0.11	0.04	21-25	21-25
	25-60	2	60	0.03	-	10-15	-
20	0-25	5	60	0.11	0.02	31-40	26-30
	25-60	2	60	-	-	15-20	-
21	0-25	5	60	0.12	-	15-20	15-20
	25-60	2	60	0.01	-	15-20	-

1/All hauls yielded less than one full box of shrimp.

The catches per 3-hour haul recorded (see columns 6 and 7, table 1) corroborate the present consensus that the 1961 shrimp stocks in the Gulf of Mexico have indeed ebbed to an unprofitable low. Since the probability of finding no concentrations in 72 widely scattered hauls would be very low even in a somewhat less-than-average season, we must conclude this to be an unusually poor season. Both brown and white shrimp seem equally affected with the decline evident at all coastal points.

No catches outside the range of normal operations (25-60 fathoms) indicated the presence of commercial quantities there, although quite large shrimp predominated. Gear damage was considerable in that area.

It was believed earlier that a delayed migration from bays at all points along the coast had perhaps postponed the start of this past summer's expected run of brown shrimp in offshore waters. This seems unlikely in view of the picture presented by bait shrimp production in Galveston Bay (table 2). Despite

Table 2 - Commercial Bait Shrimp Production in Galveston Bay, May-September Season, 1959-61

Month	Brown Shrimp			White Shrimp		
	1961	1960	1959	1961	1960	1959
	(Pounds Per Hour's Trawling)					
May	18.3	29.9	-		4.6	-
June	37.0	105.9	-	0.5	0.7	-
July	19.2	27.2	21.8	4.3	15.7	32.6
August	11.1	17.5	3.3	21.2	77.6	35.0
September	-	1.1	3.8	-	62.8	26.8

the fact that total monthly landings in 1961 approached those for the same period last year, considerably more effort had to be expended to obtain them. This reduced brown shrimp catch-to-effort ratio reflects, in the juvenile or nursery ground phase of this year's early season spawning class, a much lower population level than prevailed in 1960.

Also available as supporting evidence are the results of the Bureau's Galveston Laboratory 1961 semiweekly sampling program in Galveston Entrance. These data show that the numbers of postlarvae (obstensibly brown shrimp) entering Galveston Bay during March and April fell from 582 per sample (17 samples) in 1960 to 22 per sample (15 samples) in the same period of 1961. The reliability of counts of postlarvae as an indication of shrimp abundance has not yet been established. If observations during the next few years confirm this relationship, it might be possible to predict fishing success well in advance of the season. Associated hydrographic data are being analyzed to determine what factors contribute most to the index's fluctuation and, accordingly, to that of brown shrimp populations in general. It is significant that the tentative conclusion that may be drawn from material provided by research under way in

Galveston Bay proper parallels that suggested by the offshore cruise data presented here.

Generally speaking, all factors point to a poor year for the Gulf Coast shrimp industry. But every so often an incident is called to the Laboratory's attention which raises the hope that this year's over-all yield may yet attain proportions better than now predicted. On September 20 the Bureau's Galveston Market News-Statistics agent reported a 12-box catch of 21-25 count white shrimp made during 12 hours of fishing the night before in 10 fathoms off Galveston.

Sport Fishing

ATLANTIC COAST MARINE RESEARCH CENTER DEDICATED:

The Atlantic Marine Game Fish Research Center, established by the U. S. Department of the Interior to study the biological problems of America's fastest growing sport fishery, was dedicated on September 28, 1961, by Secretary of the Interior Stewart L. Udall and Senator Harrison A. Williams, Jr., of New Jersey.

The Atlantic Marine Game Fish Research Center, Sandy Hook, N. J.

The Research Center is at Sandy Hook, N. J., in a former base hospital at Fort Hancock. The area was made available by the Department of the Army.

The current program of the new Center involves the following activities: Completion of a comprehensive report on a national survey of marine game fishing as a background for directing future research; development of a catalog of game fishing facilities; compilation of a listing of all existing knowledge on marine game fish and their environment; the initiation of research to fill existing gaps in knowledge of the biology of migratory fish which utilize a protected inshore environment; and the sponsoring of graduate training to stimulate the recruitment of marine biologists for work in that field.

To carry out the program, the Center has biological laboratory facilities; oceanographic instruments for salinity, temperature, and current measurements; collecting equipment for plankton and fish; and a salt-water system with tanks for culturing marine organisms and fish.

Marine sport fishermen catch more than half a billion pounds of fish each year and spend more than $600 million doing it. The recent National Survey of Fishing and Hunting shows that 6,292,000 Americans engaged in salt-water fishing in 1960, an increase of about 38 percent over the 1955 figure. More than half of the marine anglers, or 3.4 million, fish in Atlantic waters.

Secretary Udall said at the dedication:

"It is clear that the oceans are both our new frontier and our last frontier from the standpoint of recreational fishing. The pace of development in this country is rapid. By the year 2000, there may well be 330 million people, an increased concentration in metropolitan areas, more money to spend, more leisure, and better travel facilities.

"All of this points to a tremendous increase in the demands upon our natural resources including marine fishes and the waters in which they live. Often these demands are of a conflicting or competing nature. There can be no doubt, however, that outdoor recreation, including fishing, has become one of the large industries of the country and will continue to outstrip our population growth.

"The advancement of science and conservation in the field of marine fishes will be needed to keep pace with this demand. The task is so large that there is far more than all of us can do. Duplication of effort would be wasteful and we should be seeking every means to cooperate and coordinate our activities, especially in research.

"Our program is conceived to accomplish this. It will focus upon basic, long-term research in an effort to provide new knowledge and better understanding of marine fishes for those who are responsible for the management of this resource. In addition, we believe

that the Federal role in this field carries additional responsibilities for defining the national dimensions of this resource and for developing methods to assess it periodically; to stimulate the recruitment and training of marine fishery biologists; and to assist in the problem of scientific communication which threatens to inundate us."

Tagging

AUTOMATIC TAG DETECTION DEVICE FOR ALASKAN HERRING:

Alaska herring tagged with metallic strips inserted in the body cavity by biologists of the U. S. Bureau of Commercial Fisheries have been recovered by the automatic tag detection device installed in a Little Port Walter (Alaska) herring reduction plant. As of the end of August this year, 12 tagged fish, which included several from 1960 tagging operations, had been recovered.

The tag detection device has been in almost continuous operation since the beginning of the 1961 Alaska herring fishing season. The device has functioned well at close to the maximum design load of the herring pumping apparatus.

Tennessee

COMMERCIAL FISH CATCH FOR CUMBERLAND RIVER RESERVOIRS IN 1960:

In addition to a sport fish catch of about 1.3 million pounds taken by anglers in 1960 from the U. S. Army Corps of Engineers' impoundments of the Cumberland River System, commercial fishermen harvested nearly 221,000 pounds of commercial fish from the five reservoirs. Altogether, the five reservoirs have a total 126,200 acres of water surface. The commercial fish catch amounted to only 1.7 pounds per acre. Cheatham Reservoir provided over half the total commercial catch or about 15 pounds per acre. Even this much greater catch can be expected to have little effect on the fish population, according to a report by the Tennessee Game and Fish Commission.

Transportation

EXPRESS RATES OF FISH AND SEAFOOD ABOUT UNCHANGED:

Higher express rates proposed in June 1961 by REA Express for fresh and frozen fishery products will not go into effect. Subsequent to the REA proposal for a rate increase, the National Fisheries Institute, several shippers of fishery products, and the U. S. Department of the Interior petitioned the Interstate Commerce Commission (ICC) to suspend and investigate the new rates on the grounds that they were unreasonable. The ICC instituted I & S (Investigation and Suspension) Docket 7622--"Increased Express Rates on Fish and Seafood - U.S.A." The investigation of the increased railway express rates has been cancelled and the protested tariffs will be replaced.

After several informal meetings concerning the proposed increases, REA officials and representatives of the protestants agreed on a compromise. The compromise included cancellation of the re-icing charges even though this subject would not have been under investigation. It was generally agreed that class-rated traffic (Tariff ICC 8500) and minimum charges would remain the same.

There were a few isolated hold-downs on commodity rated traffic. Tariffs ICC 8320, 8321, and 8331 will be increased to a percentage of the applicable regional first-class rate as follows: 1-499 pounds, 60 percent; 50-999 pounds, 56 percent; 1,000-1,999 pounds, 54 percent; 2,000 pounds and over, 51 percent. Where quantity rates are in gallons such as shucked clams, oysters, and scallops: 1-39 gallons, 60 percent; 40-79 gallons, 56 percent; 80-159 gallons, 54 percent; over 159 gallons, 51 percent.

The REA will entertain proposals for specific commodity rate reductions where warranted and consistent with the particular cost of operations allowing for contributions to the fixed costs and profit of the company.

The REA will publish new tariffs consistent with the compromise.

Tuna

YELLOWFIN CATCH IN EASTERN PACIFIC AT RECORD HIGH:

A record total of about 99,000 tons of yellowfin tuna has been caught in the Eastern Pacific by United States and Latin American countries during 1961 through September, setting a new catch record for this species. However, most of the catch was by United States vessels. The 1961 catch exceeds that for the same period in 1960 (the former record year) by 19,500 tons, or 24 percent.

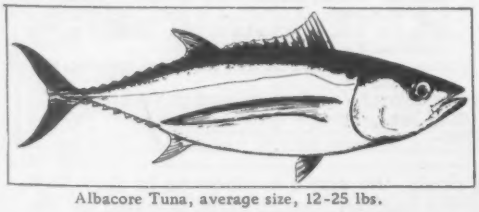
Yellowfin Tuna, average size, 30-40 lbs.

At this time it is estimated that the total calendar year 1961 yellowfin landings from the Eastern Pacific will approximate 115,000 tons, or about 10,000 tons more than that caught during 1960.

* * * * *

ALBACORE OCEANOGRAPHIC SURVEY OFF CALIFORNIA:

The U. S. Bureau of Commercial Fisheries research vessel Black Douglas and the California Department of Fish and Game research vessels Alaska and N. B. Scofield completed an albacore tuna oceanographic survey in July 1961.



Albacore Tuna, average size, 12-25 lbs.

One of the highlights of the Black Douglas cruise was the discovery of a 5° F. thermal boundary (in 2 miles, surface water temperatures changed from 57° to 62° F.) 150 miles southwest of Point Conception. A marked salinity gradient accompanied the temperature change and water color changed from green to blue. Albacore were taken in the 62° F. oceanic blue water within 2 to 3 miles of the boundary area.

* * * * *

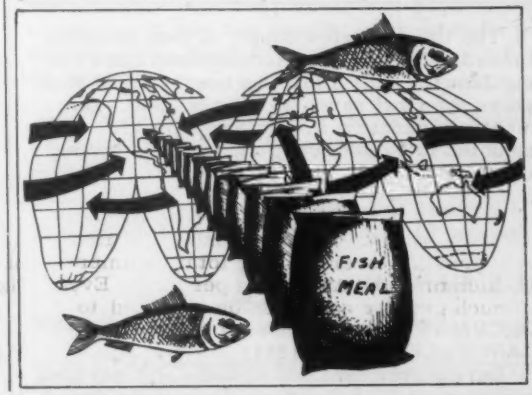
UNITED STATES AND TERRITORIES 1961 CANNED PACK AT RECORD HIGH:

As of September 23, 1961, for the United States west coast and as of August 31 for Hawaii, American Samoa, and Puerto Rico, this year's total tuna pack for those areas totaled about 11.1 million cases--an increase of 700,000 cases or 7 percent as compared with the previous record pack in 1960 for the same period. The pack in the areas mentioned represents about 72 percent of the 15.3 million cases packed in the United States, American Samoa, and Puerto Rico in 1960.

While the California tuna pack in 1961 is estimated at about the same as during 1960 (8.3 million cases), the pack in Puerto Rico, American Samoa, and Hawaii is about twice as large and accounts for nearly all of the increase. Most of the increase is in the pack of light meat tuna.

U. S. Fish Meal and Solubles Supply, July 1961

The total United States supply of fish meal for the first 7 months of 1961 amounted to 288,600 tons--68,600 tons above the same period of 1960. The domestic production



accounted for 56 percent and imports 44 percent of the total supply.

Fish meal produced by United States firms during January-July 1961 totaled 162,400 tons. Fish meal processed from menhaden accounted for 86 percent of that total. Fish meal imports from foreign countries during January-July 1961 amounted to 126,200 tons--up 46,700 tons from the same period of 1960. Imports from Peru made up 65 percent and those from Canada, Chile, and the Republic of South Africa accounted for 33 percent of the total.

U. S. Supply of Fish Meal and Solubles, January-July 1960-61 and Total for 1960

Item	January-July 1961	January-July 1960	Total 1960
	(Short Tons)		
Fish Meal and Scrap:			
Domestic production:			
Menhaden	139,357	106,508	218,423
Tuna and mackerel	11,378	17,303	26,325
Herring, Alaska	2,388	3,140	6,071
Other	9,277	13,466	38,897
Total domestic production	1/162,400	1/140,417	289,716
Imports:			
Canada	26,265	24,421	30,982
Peru	81,787	40,739	68,156
Chile	8,080	9,113	21,183
Angola	1,433	-	888
Republic of South Africa	7,716	4,930	7,073
Other countries	892	303	3,279
Total imports	126,173	79,506	131,561
Available fish meal supply	288,573	219,923	421,277
Fish Solubles:			
Domestic production 2/:	60,298	55,822	98,299
Imports:			
Canada	699	691	869
Denmark	28	1,858	1,858
Other countries	1,200	65	447
Total imports	1,927	2,614	3,174
Available fish solubles supply	62,225	58,436	102,103

1/Preliminary. Based on reports from firms which accounted for 96 percent of the 1960 total production.
2/50 percent solids. Includes production of homogenized-condensed fish.

The United States supply of fish solubles (including homogenized-condensed fish) during January-July 1961 was nearly 3,800 tons above the first seven months of 1960. Domestic production in January-July 1961 amounted to 60,300 tons, and imports totaled 1,900 tons.

U. S. Fishing Vessels

DOCUMENTATIONS ISSUED AND CANCELLED, JULY 1961:

During July 1961, 50 vessels of 5 net tons and over were issued first documents as fishing craft, the same number as in July 1960. But the number issued first documents the first 7 months this year was 16 more than in the same period last year.

Table 1 - U. S. Fishing Vessels 1/--Documentations Issued and Cancelled, by Areas, July 1961 With Comparisons

Area (Home Port)	July 1961	July 1960	Jan.-July 1961	Jan.-July 1960	Total 1960
			(Number)		
Issued first documents 2/:					
New England	4	7	21	20	35
Middle Atlantic	1	2	5	13	18
Chesapeake	5	5	40	43	78
South Atlantic	5	7	26	36	47
Gulf	12	7	73	53	90
Pacific	22	20	123	109	146
Great Lakes	1	2	9	9	18
Puerto Rico	-	-	2	-	-
Total	50	50	299	283	432
Removed from documentation 3/:					
New England	3	-	11	15	22
Middle Atlantic	1	-	16	6	18
Chesapeake	3	1	20	10	21
South Atlantic	3	-	17	20	38
Gulf	4	9	60	64	90
Pacific	7	4	59	42	87
Great Lakes	3	-	11	6	13
Puerto Rico	-	-	-	1	1
Total	24	14	194	164	290

1/For explanation of footnotes, see table 2.

Table 2 - U. S. Fishing Vessels--Documents Issued and Cancelled, by Tonnage Groups, July 1961

Gross Tonnage	Issued 2/	Cancelled 3/
	(Number)	
5-9	5	6
10-19	20	10
20-29	8	2
30-39	5	-
40-49	4	2
50-59	4	-
60-69	2	1
70-79	1	1
80-89	1	1
130-139	-	1
Total	50	24

1/Includes both commercial and sport fishing craft. A vessel is defined as a craft of 5 net tons and over.
2/Includes redocumented vessels previously removed from records. Vessels issued first documents as fishing craft were built: 31 in 1961, 3 in 1960, 1 in 1959, 1 in 1954, 1 in 1952, and 13 prior to 1951. Assigned to areas on the basis of their home ports.
3/Includes vessels reported lost, abandoned, forfeited, sold alien, etc.
Source:--Monthly Supplement to Merchant Vessels of the United States, Bureau of Customs, U.S. Treasury Department.

U. S. Foreign Trade

EDIBLE FISHERY PRODUCTS, JULY 1961:

Imports of edible fresh, frozen, and processed fish and shellfish into the United States

during July 1961 decreased by 1.9 percent in quantity and 3.6 percent in value as compared with June 1961. The decrease was due primarily to lower imports of tuna other than albacore (down 2.6 million pounds) and lobster and spiny lobster (down 1.6 million pounds), and to a lesser degree a decrease in the imports of frozen shrimp. The decrease was partly offset by a 3.3-million-pound increase in the imports of groundfish fillets and blocks.

Compared with July 1960, the imports in July this year were down 7.3 percent in quantity, but up 5.5 percent in value. Lower imports of frozen tuna other than albacore (down 7.0 million pounds), canned tuna other than albacore (down 1.2 million pounds), and frozen shrimp (down 0.7 million pounds) contributed to the decline. Compensating, in part, for the decrease were increases in the imports of canned albacore tuna (up about 1.5 million pounds), canned sardines not in oil (up 2.0 million pounds), and lobster and spiny lobster (up 1.5 million pounds).

U. S. Imports and Exports of Edible Fishery Products, July 1961 with Comparisons

Item	QUANTITY			VALUE		
	July		Year	July		Year
	1961	1960	1960	1961	1960	1960
	(Millions of Lbs.)			(Millions of $)		
Imports:						
Fish & Shellfish: Fresh, frozen, & processed 1/	85.1	92.2	1,011.2	26.7	25.3	304.8
Exports:						
Fish & shellfish: Processed only 1/ (excluding fresh & frozen)	1.5	2.1	48.7	0.8	1.0	19.2

1/Includes pastes, sauces, clam chowder and juice, and other specialties.

United States exports of processed fish and shellfish in July 1961 were higher by 25.9 percent in quantity, but unchanged in value as compared with June 1961. Compared with the same month in 1960, the exports this July were down 25.8 percent in quantity and 20.0 percent in value. The lower exports in July this year as compared with the same month in 1960 were due to decreased exports of canned shrimp, salmon, and California sardines.

* * * * *

UNITED STATES EXPORTS AND RE-EXPORTS OF FROZEN SHRIMP TO JAPAN, JANUARY-JUNE 1961:

Of the almost 3.6 million pounds of domestic and foreign fresh and frozen shrimp exported and re-exported from the United States during the first six months of this year, a little over 2.0 million pounds were shipped to Japan. A substantial proportion of the shipments to Japan was made from California. Most of the re-exports consist of shrimp imported into the United States from Mexico.

U. S. Exports and Re-Exports of Fresh and Frozen Shrimp 1/ to Japan, Jan.-June 1961

Type of Product	Jan.	Feb.	Mar.	Apr.	May	June	Total
	(1,000 Lbs.)						
Domestic	31	80	23	64	137	111	446
Foreign	286	198	185	148	326	425	1,568
Total	317	278	208	212	463	536	2,014

1/Although data appear under the "fresh and frozen shrimp" category, it is believed that all of the exports were frozen shrimp.

Exports and re-exports of shrimp to Japan from California were negligible prior to 1961. But due to a short supply of shrimp in Japan during the first part of this year and a strong market, that country has purchased substantial quantities of shrimp from the United States. Most of the Japanese purchases consist of frozen raw headless brown shrimp, 21-25 shrimp to the pound. But some shipments included 26-30 count, 16-20 count, and under 15 count.

* * * * *

IMPORTS OF CANNED TUNA IN BRINE UNDER QUOTA:

The quantity of tuna canned in brine which may be imported into the United States during the calendar year 1961 at the 12½-percent rate of duty is 57,114,714 pounds. Any imports in excess of the quota are dutiable at 25 percent ad valorem.

Imports from January 1-September 2, 1961, amounted to 35,537,369 pounds, according to data compiled by the Bureau of Customs.

Imports in 1960 for the period January 1-September 3 amounted to 32,925,519 pounds.

Vessels

INFLATABLE LIFE RAFTS TESTED:

The value of inflatable life rafts as survival insurance for the crews of fishing

vessels was demonstrated in a recent test on board the Boston trawler Terra Nova.

With 60 or more spectators aboard, including vessel owners, marine insurance officials, newspapermen, and others interested in marine safety, the Terra Nova sailed out beyond Boston Lightship where a Coast Guard-approved inflatable life raft was thrown overboard from the deck of the trawler.

The raft inflated automatically inside of 30 seconds whereupon it was subjected to a series of operational tests including boarding from the water by fully-clothed men, towing (fully loaded) at a 5-knot rate, and jump boarding by crew members who jumped from the vessel's bridge onto the canopy of the raft, with no damage resulting.

The head of the U. S. Bureau of Commercial Fisheries Fishing Vessel Safety Program reported that the demonstration was a complete success from a performance standpoint and proved that rafts of this type can be quickly launched by untrained crews under adverse conditions, are easy to board, and offer protection from extreme weather conditions--an important consideration where survival is concerned.

"The introduction of these Coast Guard-approved inflatable life rafts to the fishing industry," he stated, "is an important contribution to marine safety and we urge all fishing vessel operators to consider inflatable life rafts as a means of providing survival insurance for their crews."

Whiting

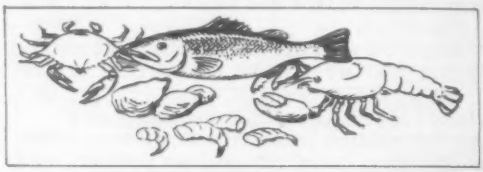
SHELF LIFE OF FROZEN PRODUCTS AFFECTED BY METHOD AND TIME OF CHILLED STORAGE:

Results of tests made by the Gloucester Technological Laboratory of the U. S. Bureau of Commercial Fisheries on whiting show that both the method and the length of chilled storage seriously influence the shelf life of the frozen products.

Whiting held for 2 days in ice or in refrigerated sea water had a frozen storage life of 12 months. Those held for 7 days in refrigerated sea water were of acceptable quality until only the sixth month of frozen storage; whereas the samples held in ice for 7 days had a frozen shelf life of only 2 months. The point of no return (zero months frozen storage) was found after storage for 14 days in refrigerated sea water 9 days in ice.

Wholesale Prices, September 1961

There was a slight drop in prices of fishery products during September this year, according to the wholesale price index for edible fishery products (fresh, frozen, and canned). The September index at 136.9 percent of the 1947-49 average showed a reversal of the steady increase in prices reported from April through August this year.



But while the over-all decrease was less than 1 percent, there were significant decreases from August to September in some fresh drawn and dressed fish products. These included fresh large haddock (ex-vessel price at Boston down 31 percent), king salmon (wholesale price at New York City down 5 percent), and fresh Lake Superior whitefish (wholesale price at Chicago down 17 percent). As the season for fresh salmon came to an end, the price of frozen king salmon in September was down slightly from that for fresh salmon in August. The decreases were almost offset by higher prices for fresh halibut (as fishing in the North Pacific drew to a close) and yellow pike at New York City.

Among the processed fresh products, prices for shucked oysters at Norfolk dropped slightly as the new season opened in September, with indications that supplies would be light this season. However, shucked oysters at $7.50 a gallon were nearly double the 1947-49 base period price.

Fresh and frozen shrimp prices from August to September continued to rise as the available supplies shrank to only about half what was available a year earlier. Wholesale prices for fresh shrimp at New York City rose 2 percent and for frozen shrimp at Chicago rose 9 percent. Gulf landings of shrimp showed no improvement in September and production was almost one-third less than in 1960. A substantial export of frozen shrimp to Japan on contracts made earlier this year when supplies appeared plentiful made the shortage of stocks in cold-storage more acute.

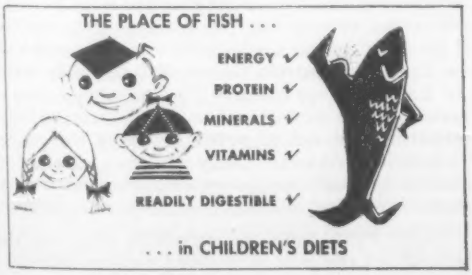
In the canned fish subgroup, a definite firming up of canned tuna prices was noted in September with an average increase of 50 cents per case (up 5 percent) for light meat chunks at Los Angeles as compared with the previous month. A sharp decline in availability of frozen tuna imports has strengthened the domestic raw tuna prices and an increase in the demand for raw tuna among canners has sparked a rise in imported frozen tuna prices. The current California sardine season was off to a poor start in September, with a catch of only 8,100 tons--down 5,000 tons or 39 percent from September 1960 (also a light production month). With canned new crop California sardines in limited supply, the canners were quoting on pound ovals only in cases of 24s at a firm price of $4.75 (up 6 percent from August 1961). While the average price for canned Maine sardines did not change in September, the available supply at the end of the month was down by 1.2 million cases, or 72 percent, as compared with the same period a year ago.

Table 1 - Wholesale Average Prices and Indexes for Edible Fish and Shellfish, September 1961 With Comparisons

Group, Subgroup, and Item Specification	Point of Pricing	Unit	Avg. Prices 1/ ($)		Indexes (1947-49=100)			
			Sept. 1961	Aug. 1961	Sept. 1961	Aug. 1961	July 1961	Sept. 1960
ALL FISH & SHELLFISH (Fresh, Frozen, & Canned)					136.9	137.1	129.2	128.1
Fresh & Frozen Fishery Products:					151.4	153.5	140.8	143.7
Drawn, Dressed, or Whole Finfish:					150.0	162.4	146.5	169.8
Haddock, lge., offshore, drawn, fresh	Boston	lb.	.09	.13	95.2	128.2	77.5	120.4
Halibut, West., 20/80 lbs., drsd., fresh or froz.	New York	lb.	.39	.38	120.7	117.6	108.3	95.4
Salmon, king, lge. & med., drsd., fresh or froz.	New York	lb.	.84	.88	188.2	196.6	194.3	210.6
Whitefish, L. Superior, drawn, fresh	Chicago	lb.	.53	.64	130.2	158.7	131.4	183.5
Yellow pike, L. Michigan & Huron, rnd., fresh	New York	lb.	.60	.55	140.7	129.0	136.0	179.4
Processed, Fresh (Fish & Shellfish):					155.7	158.2	146.0	137.0
Fillets, haddock, sml., skins on, 20-lb. tins	Boston	lb.	.31	.31	105.5	103.8	98.7	108.9
Shrimp, lge. (26-30 count), headless, fresh.	New York	lb.	.89	.87	140.6	136.7	114.5	114.1
Oysters, shucked, standards	Norfolk	gal.	7.50	8.00	185.6	198.0	198.0	173.2
Processed, Frozen (Fish & Shellfish):					130.9	124.0	115.3	110.1
Fillets: Flounder, skinless, 1-lb. pkg.	Boston	lb.	.39	.39	100.8	100.8	100.8	100.8
Haddock, sml., skins on, 1-lb. pkg.	Boston	lb.	.33	.33	103.6	102.0	103.6	87.9
Ocean perch, lge., skins on, 1-lb. pkg.	Boston	lb.	.30	.29	120.8	114.8	112.8	108.7
Shrimp, lge. (26-30 count), brown, 5-lb. pkg.	Chicago	lb.	.89	.82	136.6	125.8	109.6	106.5
Canned Fishery Products:					116.4	114.1	112.4	106.5
Salmon, pink, No. 1 tall (16 oz.), 48 cans/cs.	Seattle	cs.	28.00	28.00	146.1	146.1	146.1	133.0
Tuna, lt. meat, chunk, No. 1/2 tuna (6-1/2 oz.), 48 cans/cs.	Los Angeles	cs.	11.50	11.00	82.9	79.3	79.3	80.0
Sardines, Calif., tom. pack, No. 1 oval (15 oz.), 24 cans/cs.	Los Angeles	cs.	4.75	4.50	110.9	105.0	105.0	89.8
Sardines, Maine, keyless oil, 1/4 drawn (3-3/4 oz.), 100 cans/cs.	New York	cs.	10.31	10.31	109.7	109.7	96.1	93.1

1/Represent average prices for one day (Monday or Tuesday) during the week in which the 15th of the month occurs. These prices are published as indicators of movement and not necessarily absolute level. Daily Market News Service "Fishery Products Reports" should be referred to for actual prices.

Compared with a year ago, the over-all index this September was up 6.9 percent. A number of products in the index were priced substantially higher this September than in the same month in 1960. Among these were western halibut at New York City (up 26.5 percent), fresh shrimp at New York City (up 23.2 percent), and frozen shrimp at Chicago (up 28.3 percent). Also, all of the canned fish included in the index were priced substantially higher. Except for halibut, most of the fresh fish products in the index were priced substantially lower with fresh haddock at Boston down 20.9 percent and fresh salmon also down substantially.



Cans--Shipments for Fishery Products, January-August 1961

Total shipments of metal cans during January-August 1961 amounted to 89,428 short tons of steel (based on the amount of steel consumed in the manufacture of cans) as compared with 87,179 tons in the same period of 1960. Canning of fishery products in January-August this year was confined largely to tuna, shrimp, jack mackerel, Pacific salmon, and Maine sardines.

Note: Statistics cover all commercial and captive plants known to be producing metal cans. Reported in base boxes of steel consumed in the manufacture of cans, the data for fishery products are converted to tons of steel by using the factor: 23.0 base boxes of steel equal one short ton of steel.

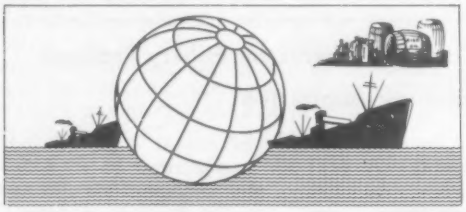
International

FISH BODY OILS

MARKET IN WESTERN EUROPE:

This assessment of the fish body oil market in Western Europe was made early in September 1961 by the Regional Fisheries Attache stationed at the United States Embassy in Copenhagen. The assessment is based on conferences with the most important fish oil trade interests and government representatives in Hamburg, Bremen, The Hague, and Rotterdam.

The semi-refined Peruvian fish body oil price on September 1, 1961, was US$125 per metric ton (about 5.67 U.S. cents a pound), in bulk c.i.f. Rotterdam, but probably the same price prevailed for delivery in other northern European ports, especially Scandinavian. The fish oil market in Western Europe is weak with buyers believing bids a few dollars a ton lower would be accepted. Panamanian oil is in the market at about the same price in small lots. Buyers also believe there are unsold stocks in Peru, Iceland, and other countries, and that forthcoming production in Peru this fall with lack of storage will not permit Peruvian producers to hold the current price level and it may drop to $110-$115 a ton (5.0-5.22 cents a pound). They state Peruvian sellers repeatedly failed in efforts to stabilize the market at successively lower levels in the last six months.



Since Peruvian fish body oil is the dominant factor in the European market, menhaden oil must meet competition from that product. A very large buyer says that crude menhaden oil with 3 percent free fatty acid, 1 percent moisture, and impurities, unbleached, untreated, and free from mineral oils, with analysis in the United States, is worth $4 to $5 less per metric ton than semi-refined Peruvian oil with 1/2 percent free fatty acid, 1/2 percent moisture, and impurities, maximum 1½ percent unsaponifiables, color maximum Gardner 9, iodine number maximum 200, with analysis European port. The high iodine number of Peruvian oil is compensated for by low stearine and free fatty acid.

The West European fish body oil trade believes there are no significant changes in the consumption of fish body oils. Oils up to 3 percent free fatty acid are used for margarine, over that for technical industrial uses in leather industry, paints, floor coverings, foundries, and fish canning. In Germany 80 percent of the use in the leather industry has reportedly been taken over by chemicals which are more uniform in action.

Consumption of butter reportedly has increased in Germany and the Netherlands due to prosperous economies. Margarine consumption is down possibly 10 to 20 percent. Some sales of margarine declined for a short period due to publicity of use of a stabilizer which may have caused illness to consumers, but which was not scientifically proven to be at fault. It is believed that the future demand for margarine made from fish body oils will be relatively stable because the vegetable margarine price is appreciably higher.

Sales for menhaden oil are poor at the current market and are not expected to improve in the foreseeable future except at competitive prices with Peruvian semi-refined oil, possibly at $4 to $5 less per ton. No one sees new markets for fish body oils, even at lower prices because there are no lower-priced oil markets to enter, and lower prices are not expected to stimulate margarine use. Menhaden oil would receive better acceptance if more attention was paid to quality by not mixing good and poor lots, and if iodine number, free fatty acid, and stearine were lower.

INTER-AMERICAN TROPICAL TUNA COMMISSION

EASTERN PACIFIC YELLOWFIN TUNA FISHERY REGULATION RECOMMENDED:

The Inter-American Tropical Tuna Commission, consisting of representatives of the Governments of Costa Rica, Ecuador, Panama, and the United States, recommended on September 14, 1961, joint action by their Governments to regulate the fishery for yellowfin tuna in the Eastern Pacific Ocean in order to conserve the populations of this species of tuna and to maintain them so as to provide maximum continuing harvests. This was the result of a special meeting of the Commission, held in Long Beach, Calif., which adopted a resolution to that effect.

The Commission's scientific staff, with headquarters at the Scripps Institution of Oceanography of the University of California, has been carrying out during the past 11 years extensive scientific research on populations of tropical tunas (yellowfin and skipjack) in the Eastern Pacific Ocean and the effects of the fishery upon them. These researches have made it possible for the Commission to detect the advent of overfishing of the yellowfin populations in its early stage, and to recommend effective conservation measures immediately upon finding that they are required.

Until 1959, both the skipjack tuna and the yellowfin tuna had remained underutilized. With the conversion of many vessels of the fishing fleet from bait-fishing to purse-sein-

International (Contd.):

ing, which is especially effective for catching yellowfin tuna, and with the addition of new vessels to the fishing fleet, during the past two years, the intensity of fishing reached, in 1960, the level corresponding to the maximum sustainable catch of yellowfin tuna in the Eastern Pacific Ocean. It is expected that during 1961, the fishing intensity will be substantially above the optimum amount, and that, in consequence, conservation regulations should be applied to this high-seas fishery for yellowfin tuna. The stock of skipjack tuna, however, which are fished by the same fleet of vessels, in the same region of the ocean, can support harvests much greater than are presently being obtained. The Commission, therefore, faced the problem of limiting fishing for yellowfin tuna while encouraging expansion of the fishery for skipjack.

The Commission met on September 14, with its Director of Investigations and several members of his staff, and with representatives of all elements of the tuna fishing industry, to consider the need for conservation regulation of the fishery for yellowfin tuna, to select the most appropriate type of regulation, and to make specific recommendations to the Member Governments for regulations during the forthcoming year. Official observers were also present from Colombia, Mexico, and Peru.

A review of the extensive data collected by the staff based on detailed statistics of fishing effort and catch, and on biological studies of the tunas indicated clearly the need for regulation of the fishery for yellowfin. Careful consideration of various possible types of fishing regulations led to the conclusion that an annual catch limit, or "quota" would be the most effective and practical measure. Based on the staff's estimate of the harvest that will be taken during 1961, the quota for 1962 was recommended to be 83,000 tons, of which amount 74,600 tons may be taken during an open season commencing January 1, 1962, and 8,400 tons will be reserved for unavoidable incidental catch of yellowfin by vessels fishing for skipjack after the closure of the season for yellowfin. Any vessel fishing for skipjack during the closed season for yellowfin will be allowed a maximum of 15 percent of yellowfin in its landings for each trip.

Since the recommended quota is based on a forecast of the catch of yellowfin during the remainder of 1961, and the actual catch may be different from the estimate, the Commission will review the catch-statistical data soon after the end of the year and, if indicated, transmit revised recommendations to the Member Governments. This will be done at the regular annual meeting of the Commission which will be held in mid-May 1962 in Quito, Ecuador, unless it is necessary to hold another Special Meeting prior to that date.

In the future, it is expected that recommendations for catch-quotas on yellowfin tuna will be made annually at the regular annual meetings of the Commission, which are held each spring. The sites of the meetings rotate among the member countries.

Although regulation by catch-quota was found to be the most practical method of regulation of the yellowfin fishery at this time, the scientific data indicate that establishment of a minimum size limit, greater than the present size at which yellowfin commence to be caught, could substantially increase the harvest which could be obtained. This is because, at small sizes, the tuna of this species are gaining more weight by growth than is being lost by mortality. Hence, by leaving them in the sea to grow to a larger size before capture, the tonnage caught could be increased. Unfortunately, however, fishermen cannot now usually determine the size of fish in a school until it is in the net and most of the fish are dead or dying. It is hoped that further research by industry and governmental agencies will lead to development of methods whereby the master of a fishing vessel will be able to determine accurately the size fish in a school before setting his net around it. Such a development could lead to an increase in the harvest of yellowfin tuna of a value of several millions of dollars each year.

The resolution adopted by the Commission follows:

"Observing, that the studies of its scientific staff have indicated that during the year 1960 the intensity of fishing for yellowfin tuna in the Eastern Pacific Ocean had reached the level corresponding to maximum average sustainable catch;

Observing, that continuing studies of catch statistics and other data indicate that, during 1961, there has been a further increase in the amount of fishing for yellowfin tuna, that the total catch during this year will exceed the sustainable yield, and that, consequently, the

International (Contd.):

populations of this species will most probably be reduced to a level which cannot provide sustained maximum yield.

Concluding, therefore, that there is a need for joint action by the High Contracting Parties to restore the yellowfin populations to those levels of abundance which will make possible the maximum sustainable yield, and to maintain them in that condition.

Noting, however, that the stocks of skipjack tuna, which are fished in the same fishing region, at the same time, can support increased harvests, which should be encouraged.

Noting that in fishing for skipjack some incidental catch of yellowfin is unavoidable.

Having considered various possible types of regulation of the yellowfin tuna fishery with respect to their biological and economic effects, feasibility and enforcement, and

Having considered that limitation of total catch, by annual quota, is the most effective and practicable type of regulation.

Noting that, although there are, in the Eastern Tropical Pacific, at least two semi-independent component yellowfin tuna populations, the allocation of fishing effort to them due to economic forces is such that, with a single annual catch quota for the entire region, there is a high probability that there will result properly balanced harvests from the population components, and, consequently,

Having concluded that, initially at least, regulation of the yellowfin tuna fishery should be effected by a single annual total catch quota for the entire region.

Having considered the estimates of the scientific staff that

(1) There will be removed by the end of 1961, from the yellowfin tuna stocks, some 23,000 tons, above the maximum sustainable yield, which require to be restored.

(2) At the level of abundance which will be reached by the end of 1961 the yellowfin stocks will most probably be capable of sustaining a yield of only 87,000 tons (if recruitment is density-dependent) or of 95,000 tons (if recruitment is density-independent), it being not possible at this time to state which condition applies.

(3) A catch quota of less than the sustainable yield at the level of abundance expected to be reached by the end of 1961 is required to restore the stocks to the condition corresponding to maximum average sustainable yield

Recommends to the High Contracting Parties, that they take joint action, as follows:

(1) Establishment of a quota of total catch of yellowfin tuna by fishermen of all nations of 83,000 tons during the calendar year 1962.

(2) Reservation of 8,400 tons of this yellowfin tuna quota for allowance for incidental catches when fishing for skipjack after closure of the fishery for yellowfin tuna.

(3) Opening of the fishery for yellowfin tuna on January 1, 1962; during the open season vessels to be allowed to clear port for fishing for this species and for skipjack.

(4) Closure of the fishery for yellowfin tuna during 1962 at such date as the quantity landed plus the expected landings of vessels which are at sea with clearance for yellowfin tuna fishing reaches 74,600 tons.

(5) After the closure of the yellowfin tuna fishery, issuing of clearances to vessels for skipjack fishing only. Any vessel operating under such clearance should be allowed to land not more than 15 percent by weight of yellowfin among its catch on any trip.

(6) Such action as may be necessary to induce Governments whose vessels operate in this fishery, but which are not parties to the Convention for the Establishment of an Inter-American Tropical Tuna Commission, to cooperate in effecting these conservation measures.

Resolves that the statistics of catch and effort respecting yellowfin tuna will be reviewed as soon after the end of calendar year 1961 as practicable and, if there is any substantial departure from the forecast values, the foregoing recommendations will, if indicated, be revised and the High Contracting Parties will be advised accordingly by this Commission.

International (Contd.):

INTERNATIONAL PACIFIC HALIBUT COMMISSION

NORTH PACIFIC HALIBUT FISHING IN AREAS 2 AND 1B ENDED:

The International Pacific Halibut Commission on August 29 announced the closure of Areas 2 and 1B to halibut fishing effective at 6 a.m. (P.S.T.) September 7, 1961. The Commission estimated that the 28-million-pound limit set for Area 2 would be caught by the closing date. Area 1B, which has no catch limit, will also be closed on the same date as Area 2. Fishing in Area 3A ended on August 23. Fishing in Areas 1B, 2, and 3A is ended until the areas are reopened in 1962.

The official opening date for all halibut fishing in the North Pacific regulatory area this year was May 10 at 6:00 a.m. (P.S.T.), except that fishing in Area 3B South started on April 25 and Area 3B North started on April 10.

Areas 2 and 1B this year were open to halibut fishing for 120 days as compared with 91 days in 1960, 68 days in 1959, 59 days in 1958, and 47 days in 1957. These same areas were fished for 38 days in 1956 (fishing started May 20), 24 days in 1955, 21 days in 1954, and 24 days in 1953. Area 1B includes the waters between Heceta Head and Willapa Bay, Wash.; Area 2, the waters between Willapa Bay and Cape Spencer; Area 3A, the waters between Cape Spencer and Shumagin Islands.

In 1960 there was a second fishing season for Areas 2 and 1B. But the regulations for this year provided for only one season with a quota of 28 million pounds for Area 2 instead of 26.5 million, the quota for 1960. Fishing in Areas 1A, 3B South, and 3B North will continue until 6 a.m. (P.S.T.) October 1, 1961. Area 3B South includes the waters West of Area 3A, not including the Bering Sea. Area 3B North includes the waters in the Bering Sea. Area 1A includes waters South of Heceta Head, Oreg.

Note: See Commercial Fisheries Review, October 1961 p. 41.

MARINE OILS

WORLD PRODUCTION AND FOREIGN TRADE IN MARINE OILS, 1957-61:

World production of marine oils (including whale and sperm whale oils, and fish and fish-liver oils) in 1961 is expected to show an increase over 1960. Increased whale oil production will be due to more coming from the Antarctic. Increased sperm whale oil production will be due to an increase from areas outside the Antarctic.

Table 1 - Estimated World Production of Marine Oils, 1957-61

Type	1961 1/	1960	1959 2/	1958 2/	1957
	(1,000 Short Tons)				
Whale	450	425	415	435	440
Sperm whale	130	120	130	135	110
Fish (including liver)	600	565	575	515	485
Total	1,180	1,110	1,120	1,085	1,035

1/Forecast.
2/Revised.

World exports of marine oils are expected to increase to an all-time high in 1961. Both exports of whale and sperm whale oil will increase, while shipments of fish oils should reach the record quantity of 1960.

Table 2 - Estimated World Exports of Marine Oils, 1957-61

Marine Oils	1961 1/	1960 2/	1959 2/	1958	1957
	(1,000 Short Tons)				
Whale	450	425	415	435	440
Sperm whale	130	120	130	135	110
Fish (including liver)	300	300	265	200	190
Total	880	845	810	770	740

1/Forecast.
2/Revised.

As of mid-1961, Iceland's fish oil exports were expected to drop sharply from the record high shipments of 1960, made possible by large beginning stocks. However, this drop will be offset somewhat by increased exports from Peru and the Republic of South Africa. Production of fish oil in those two countries is expanding rapidly and all, except a limited quantity retained for domestic consumption, enters world trade. World trade in fish oils in recent years has been stimulated by a declining production of marine oils in Western Europe, the world's leading consumer of those oils. (Foreign Crops and Markets, U. S. Department of Agriculture, August 31, 1961.)

TUNA

CONFERENCE HELD ON BIOLOGY OF PACIFIC OCEAN TUNAS:

An informal Pacific Tuna Biology Conference, arranged by the U. S. Bureau of Commercial Fisheries Honolulu Biological Laboratory, was held at the University of Hawaii, August 14-19, 1961. It was attended by 79 individuals, including 40 from overseas. In addition to the continental United States, the overseas participants were from Australia, Canada, Ecuador, Hong Kong, Italy (FAO), Japan, New Caledonia, New Guinea, New Zealand, and the Philippines.

Virtually all of the 50 contributed papers were reproduced and distributed in advance of the Conference. No papers were presented at the Conference. They were grouped by

International (Contd.):

subject matter in the following categories: (1) Taxonomy and Nomenclature; (2) Distribution; (3) Migration; (4) Behavior; (5) Subpopulations; (6) Tuna Oceanography; and (7) Background Papers. Half-day discussions were held on nearly each category. Each discussion group was provided with a discussion leader and rapporteur. Summary reports of the discussions were available on the day following.

Recommendations of the Conference arose during the course of the discussions and from two working groups (one on Taxonomy and Nomenclature, the other on Identification of Larval and Juvenile Tunas). Of the 15 recommendations of the Conference, 4 were concerned with the subpopulation or racial problem. The Bureau's Honolulu Laboratory was requested to establish a World Center for the exchange of tuna red blood cells and reagents used in identifying tuna blood groups (which are being used to identify subpopulations). Examples of problems to be attacked by tagging experiments or blood group studies included (1) do small southern bluefin south of Australia subsequently enter the fisheries to the west and northwest of Australia? (2) what are the movements of small North Pacific albacore up to the time they enter the fishery?; and (3) do the small-medium albacore found off the west coast of South America eventually enter the fishery of the tropical South Pacific? The importance of improving methods of transporting and storing blood samples was recognized. Additional studies of how much mixing must take place between subpopulations before they are no longer "independent" were urged.

Other recommendations dealt with taxonomy and nomenclature, assessment of year-class size of North Pacific albacore, international cooperation and exchange of scientists between laboratories, and the need to assess the magnitude of the world tuna resource and the potential sustained yield of tuna.

Recommendations, together with abstracts of submitted papers and summary reports of the discussions, will be published.

Australia

GOVERNMENT-SPONSORED TRAWLING COMPANY TO BE SOLD:

The Australian Government has decided to invite offers from commercial interests for the trawl fishing enterprise based on Port Adelaide and operating in the Great Australian Bight. The enterprise has been operated by a trawling company backed by the Government.

Announcing this in Canberra on June 14, 1961, the Minister for Primary Industry said the company had naturally encountered problems inevitable in a pioneering project of this sort during the first year or so of operations. However, over the period of 15 months that the company had been trawling, it had done valuable work in testing the commercial potentialities of the Bight fishery. It had obtained information and gained experience that would be of much value to any private concern interested in carrying on the enterprise.

The company's trawler Southern Endeavour is a modern Diesel vessel, 160 feet in length, and well suited to the Bight conditions. The company had undertaken successful experiments in processing the Bight fish and marketing it in the form of frozen fillets. Acceptance by the trade and the public of the processed fish has been very encouraging.

The Minister for primary Industry said the Government's action in providing funds to test the Bight's commercial potentialities had been in line with its policy of aiding the development of Australian fisheries, and the development fund established from the proceeds of the sale of the Whaling Commission in 1956 had been set up for that special purpose. The decision now to invite private enterprise to take over the project was also in line with Government policy.

Negotiations for the sale of the undertaking as a going concern would be in the hands of the Board of Directors of the trawling company. Any offers for a part interest in the undertaking or for the trawler and other assets of the company would likewise be considered. The company would seek offers through the press and appropriate fisheries publications. The decision on the acceptance of any offer would finally rest with the Government. (Australian Fisheries News-Letter, July 1961.)

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Australia (Contd.):

SURVEY OF TUNA RESOURCES OFF SOUTH-WEST COAST PLANNED:

In June 1961, the Australian Minister of Primary Industry announced that a survey to determine the commercial tuna fishing potential off the southwest coast of Australia would be started.

The survey, which would cover a period of 12 months, would be financed from the Fisheries Development Trust Account.

A proven tuna fishing vessel with an experienced crew would undertake the survey and tenders would soon be called for the charter of a suitable vessel.

The Minister said the presence of tuna in the waters off the south-west coast of Australia had been clearly established, but the commercial prospects were unknown. The Commonwealth Government and the Western Australian Government are anxious to extend the tuna industry to the Western Australian area.

In 1960/61 Australian production of tuna was estimated at about 10 million pounds of which about half was produced on the south coast of New South Wales and half in South Australia. The industry has expanded tenfold since 1954/55, when 1 million pounds was produced.

There was believed to be an even greater potential market in Australia, because the present Australian consumption of one-fifth pound of processed tuna per capita per year was well below consumption in the United Kingdom and the United States.

South Australia ended the 1961 tuna season with a catch of about 2,500 tons (value £140,000 or about US$313,000), according to a statement by an industry member.

This is within about 100 tons of the New South Wales catch of 2,582 tons and means that the Australian total for 1960/61 will reach the 5,000-ton total estimated by Australian fisheries officials.

About 400 tons of frozen tuna had left Port Lincoln for United States ports and another 200 tons were exported in July this year. (Fisheries Newsletter, July 1961.)

Brazil

COUNCIL CREATED FOR FISHERIES DEVELOPMENT:

A Fisheries Development Council (Conselho de Desenvolvimento da Pesca--CODEPE) in the Brazilian Government has been created by Decree No. 50872 of June 28, 1961. The new agency, which was being organized late in August 1961, will be directly subordinate to the President of the Republic and its Executive Director will therefore have the equivalent of ministerial rank. Federal responsibility for fisheries has heretofore been exercised by the Hunting and Fisheries Division of the Department of Animal Production of the Ministry of Agriculture.

The Fisheries Development Council will be responsible for policy and planning for the fishing industry on a national scale, something which has hitherto not effectively existed. Its policy directives will be carried out by the present Hunting and Fisheries Division of the Ministry of Agriculture as well as by other Federal agencies concerned with the fishing industry and it is authorized to enter into agreements with State and Municipal Governments for this purpose. Its tasks will be to carry out research with the aim of developing the fishing industry; to recommend construction of ports, shipyards, cold-storage plants, processing plants, and other installations; to recommend the granting of subsidies, tax exemptions, and technical and financial assistance for the establishment or development of fishing and fishing vessel construction industries; and to study the re-equipping of the national fishing fleet. The Council will also examine and recommend changes in present fishing legislation, including the organization of the Federal agencies now concerned with fisheries, and take the necessary steps for changing the present Fisheries Credit Fund into a Fisheries Development Bank, though what revenue it will have is not yet known. (United States Embassy in Rio de Janeiro, August 28, 1961.)

Canada

NEW BRUNSWICK FISH MEAL PRICES, AUGUST 1961:

Fish-meal prices (60-percent protein) quoted by New Brunswick producers late in August 1961 averaged about C$120 a short ton ($2.00 a protein unit) for both exports and domestic sales. The price was un-

Canada (Contd.):

changed from the late July 1961 price. (U. S. Consulate, Saint John, N.B., August 29, 1961.)

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REGULATIONS AMENDED TO INCLUDE SHRIMP COCKTAIL:

Canadian requirements for shrimp cocktail were issued on August 16, 1961, as an amendment to the Regulations under the Meat and Canned Foods Act of Canada. The requirements are:

1. "Shrimp cocktail" means shrimp in combination with sauce, spices, seasonings, and flavorings.

2. In the preparation of shrimp cocktail, only sound, cooked, and peeled whole shrimp may be used and the contents of the can shall include not less than 36.5 percent by weight of shrimp.

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RUBBER BANDS FOUND BEST FOR SECURING LOBSTER CLAWS:

A series of experiments in the inactivating of lobster claws has been carried out by scientists of the Fisheries Research Board of Canada. The method offering the best advantages is that of securing the claws with rubber bands or twine. The other methods tried by the team consisted of either inserting a small wooden or plastic plug in the thumb joint of the claw; or cutting the lobster's extensor tendons so that it was unable to open its claw.

After months of experiments with all three, and also with untreated lobsters, it was found that the rubber band method had distinct advantages over both "plugging" and "cutting." While the death rate among lobsters that had been banded was slightly higher than among those that had been "plugged," it was found that the insertion of the plugs often caused serious damage to the claws. This in turn tended to affect the appearance of the shell and the meat, destroyed some of the meat, and led to the development of off-flavors.

The tendon-cut lobsters were not apparently affected by the operation, but it was found that at times, particularly during handling, the claws opened when the lobsters came into contact with others, and some of the injuries inflicted at such times were thought to have undoubtedly contributed to the increased death rate in lobsters treated in this manner.

The main complaints leveled against the use of bands by Canadian fishermen is that the bands tend to slip off, and that this particular method is slower than plugging or cutting. (World Fishing, September 1961.)

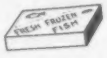
Czechoslovakia

MAY PURCHASE MORE FROZEN TUNA FROM JAPAN:

Czechoslovakia, which signed an agreement with Japan in April 1961 to purchase 1,050 metric tons of frozen tuna, has indicated that she would like to import an additional 900 metric tons, and Japan is shortly expected to approve this second contract. The contract price will be $290 a metric ton c.i.f. for yellowfin tuna (including albacore and bluefin) and $275 a ton (c.i.f.) for bigeyed tuna.

Sales to Czechoslovakia, Libya, and Tunisia, etc., not including Italy and Yugoslavia, are expected to total 550 metric tons in October, 480 tons in November, and 1,000 tons in December. (Suisan Tsushin, September 11, 1961.)

Translator's Note: According to earlier press reports, Japan was to deliver 1,050 metric tons of frozen tuna to Czechoslovakia between June and September 1961. Czechoslovakia had then indicated that she would likely purchase more tuna if the shipments proved satisfactory.



Denmark

EXPERIMENTAL TRAWLING FOR COD OFF WEST GREENLAND:

The experimental fishery for cod off West Greenland this summer, conducted by two Danish steel cutters (equipped with bottom and floating trawls) from Skagen, has been characterized as a "fiasco" in newspaper accounts. In four months the cutters were able

Denmark (Contd.):

to catch only 100 metric tons of fish. The unsuccessful effort cost the Greenland National Council 300,000 kroner (US$43,500). The contract was cancelled August 22, 1961.

The 100-foot vessels were chartered for 32,150 kroner ($4,700) each per month and fished from Godthaab to Holsteinborg. One reason for the failure was the lack of knowledge of bottom conditions and ocean currents.

The owner of the cutters is less pessimistic about trawling than the Council. His company is investing 6,500,000 kroner ($943,000) in a fillet plant in Godthaab. When the plant begins operations in 1963, the steel cutters will fish again for polar cod, as he believes unlimited quantities can be taken in the winter. (August 25, 1961, report from the Fisheries Attache, United States Embassy, Copenhagen.)

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FISHERMEN LEAVE INDUSTRY:

Reports from the various Danish fishing ports continue to indicate that fishermen are leaving the fishing industry. At Esbjerg, the largest port, it is believed 400 fishermen have taken other jobs this summer. There is little to indicate that they will return to the fluctuating prices and incomes of the fishing industry.

The head of the Esbjerg Fishery Association has suggested that the Danish cutters recruit Greenland and Faroese fishermen. The Ministry for Greenland sees merit in the suggestion as fitting in well with its educational program, and indicated it would consider such a request from the Association. At present substantial numbers of Faroese fishermen fish on Icelandic, Norwegian, and German vessels so it is reasonable to expect they would fish on Danish craft. (Fisheries Attache, United States Embassy, Copenhagen, August 25, 1961.)

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FISH FILLETS AND BLOCKS AND FISHERY BYPRODUCTS EXPORTS:

January-May 1961:

Denmark exported 5.8 million pounds of fresh and frozen fish fillets and blocks during May 1961. This represented an increase of 2.3 million pounds as compared with May 1960. Of the total exports in May 1961, the United States received 749,000 pounds, mostly cod and related species.

From January through May 1961, Denmark shipped 5.8 million pounds of frozen fish fillets and blocks to the United States, again mostly cod and related species.

Total exports of fresh and frozen fillets and blocks for January through May 1961 amounted to 29.1 million pounds, an increase of 9.5 million pounds over the same period in 1960. Exports of fillets and blocks of cod and related species increased by 26 percent, and flounder and sole exports increased by 45 percent.

Denmark's Exports of Fresh and Frozen Fish Fillets and Blocks and Fishery Byproducts, January-May 1961 1/

Product	May 1961	May 1960	Jan.-May 1961	Jan.-May 1960
	(1,000 Lbs.)			
Edible products:				
Fillets and Blocks:				
Cod and related species	2,947	2,327	16,734	13,266
Flounder and sole	2,356	1,045	8,193	5,655
Herring	440	2/	3,676	2/
Other	88	147	477	651
Total	5,831	3,519	29,080	19,572
	(short tons)			
Industrial products:				
Fish meal, solubles, & similar products	2,215	1,928	12,977	10,752

1/Shipments from the Faroe Islands and Greenland direct to foreign countries not included.
2/Included with "other" category.

Denmark's exports of fish meal, fish solubles, and other similar products also increased from 1,928 short tons in May 1960 to 2,215 tons in May 1961. Exports of industrial fishery products for the first five months of 1961 were 21 percent greater than those of the same period in 1960. None of those products were shipped to the United States.

In April 1961, Denmark exported almost 4.2 million pounds of fresh and frozen fish fillets and blocks as compared to 5.0 million pounds in the same month of 1960. Shipments to the United States in April this year totaled 644,000 pounds, mostly of cod and related species. April 1961 total exports of fish meal, fish solubles, and similar products of 839 short tons were substantially less than exports of 1,856 tons in April 1960.
Note: Also see Commercial Fisheries Review, August 1961 p. 60.

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January-June 1961:

Denmark exported 6.5 million pounds of fresh and frozen fish fillets and blocks during June 1961. This represented an increase of 1.7 million pounds as compared with June 1960. Of the total exports in June 1961, the United States received almost 1.9 million pounds, mostly cod and related species.

From January through June 1961, Denmark shipped 7.7 million pounds of frozen fish fillets and blocks to the United States, again mostly cod and related species.

Total exports of fresh and frozen fillets and blocks January through June 1961 amounted to 35.6 million pounds, an

Denmark (Contd.):

increase of 11.2 million pounds over the same period in 1960. Exports of fillets and blocks of cod and related species increased by 30 percent, and flounder and sole exports increased by 31 percent.

Denmark's Exports of Fresh and Frozen Fish Fillets and Blocks and Fishery Byproducts, January-June 1961 1/

Product	June		Jan.-June	
	1961	1960	1961	1960
	(1,000 Lbs.)			
Edible Products:				
Fillets and Blocks:				
Cod and related species	3,740	2,440	20,474	15,706
Flounder and sole	2,039	2,182	10,232	7,837
Herring	485	-	4,161	-
Other	223	2/196	700	2/847
Total	6,487	4,818	35,567	24,390
	(Short Tons)			
Industrial Products:				
Fish meal, solubles, & similar products	9,070	5,080	22,047	15,832

1/Shipments from the Faroe Islands and Greenland direct to foreign countries not included.
2/Includes herring fillets.

Denmark's exports of fish meal, fish solubles, and other similar products also increased from 5,080 short tons in June 1960 to 9,070 tons in June 1961. Exports of industrial fishery products for the first six months of 1961 were 39 percent greater than those of the same period in 1960. None of those products were shipped to the United States.

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January-July 1961:

Denmark exported 5.5 million pounds of fresh and frozen fish fillets and blocks during July 1961. This was an increase of 1.7 million pounds as compared with July 1960. Of the total exports in July 1961, the United States received 1.2 million pounds, mostly cod and related species.

From January through July 1961, Denmark shipped 8.9 million pounds of frozen fish fillets and blocks to the United States, again mostly cod and related species.

Total exports of fresh and frozen fillets and blocks January through July 1961 amounted to 41.0 million pounds, an increase of 12.9 million pounds over the same period in 1960. Exports of fillets and blocks of cod and related species increased by 29 percent, and flounder and sole exports increased 34 percent.

Denmark's Exports of Fresh and Frozen Fish Fillets and Blocks and Fishery Byproducts, January-July 1961 1/

Product	July		Jan.-July	
	1961	1960	1961	1960
	(1,000 Lbs.)			
Edible Products:				
Fillets and Blocks:				
Cod & related species	2,325	1,906	22,799	17,612
Flounder and sole	2,619	1,772	12,851	9,609
Herring	406	-	4,567	-
Other	128	2/68	828	2/915
Total	5,478	3,746	41,045	28,136
	(Short Tons)			
Industrial Products:				
Fish meal, solubles, & similar products	4,737	5,864	26,784	21,696

1/Shipments from the Faroe Islands and Greenland direct to foreign countries not included.
2/Includes herring fillets.

Denmark's exports of fish meal, fish solubles, and other similar products decreased from 5,864 short tons in July 1960 to 4,737 tons in July 1961. But exports of industrial fishery products for the first seven months of 1961 were 23 percent greater than those of the same period in 1960. None of those products were shipped to the United States.

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MINK FARMERS BUY FOOD FISH:

Low prices for the fourth grade of plaice in August 1961 made it possible for Danish mink farmers to purchase these small food fish at the fish auctions for as low as 5.8 U.S. cents a kilogram (2.6 cents a pound). There are substantial imports of fish waste from Germany for mink food at a price of about 3.62 cents per kilo (1.7 cents a pound) to which the cost of freight must be added. Danish fishermen have been unable to agree on measures to set a minimum price for small plaice and to increase the minimum size. (The United States Embassy, Copenhagen, Fisheries Attache reported on August 25, 1961.)

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RETAIL FISH DEALERS DISCUSS PER CAPITA CONSUMPTION:

At the meeting of the National Organization of Denmark's Retail Fish Dealers on August 21, 1961, in Horsens, the president announced that the per capita consumption of fish in Denmark in 1960 was 14.5 kilos (round weight) or 31.9 pounds, an increase of 3.7 kilos or 8.1 pounds over 1959.

At the previous annual meeting the results of Swedish research indicated that eating fish could decrease the risk of arteriosclerosis. Danish research has now demonstrated that there was a connection between a high level of cholesterol in the blood and the development of arteriosclerosis. In a radio talk, Dr. Erling Lund, a well known Danish physician, stated that it was important that there be eaten greater amounts than heretofore of the fats and oils containing the unsaturated fatty acids such as found in fish.

More fish retailers are installing freezer cabinets but only about 2.2 million pounds of frozen fish were sold in 1960. Fish retailers, like fishing vessel owners, find it difficult to secure labor. The number of independent re-

Denmark (Contd.):

tail fish dealers is decreasing markedly. The plans of the Health Department for regulating the sale of frozen fish were welcomed. A demand for date stamping all quick-frozen fishery products is to be investigated. Regulations governing chain-store operations were pointed to by the Minister of Fisheries as a protection against eventual competition with foreign companies through membership in the Common Market. Another Ministry of Fisheries official reminded the retail dealers that they, as well as fishermen, were eligible for loans from the Danish Fishery Bank.

The per capita consumption is determined annually by the Ministry of Fisheries by adding the production and imports and deducting the exports and dividing the population by the remainder. The very large increase from 1959 to 1960 stimulated a recheck of the figures with the same result. The Ministry official who prepared the figures ascribed the increase to the fact that the depressed fish meal market forced more Danish fishing vessels into producing food fish rather than industrial fish. He also thought there was an increased consumption of fish fillets. (According to a report from the Fisheries Attache, United States Embassy, Copenhagen, dated August 25, 1961.)

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SALES COOPERATIVE HAS GOOD SEASON:

A Danish cooperative marketing agency, which is affiliated with 26 fishery sales cooperatives throughout Denmark, announced at its annual meeting on August 19, 1961, that it had had its best season with sales amounting to 15,300,000 kroner (US$2.2 million), and a net profit of 130,000 kroner ($18,900). Half of the profit goes to shareholders in proportion to their deliveries of fish and half to the reserve fund which now totals 440,000 kroner ($63,800). (An August 25, 1961, report from the United States Embassy, Copenhagen, Fisheries Attache.)

Egypt

ORGANIZATION FORMED TO DEVELOP MARINE RESOURCES:

A decree signed by Egypt's President on September 12, 1961, officially establishing a General Marine Wealth Development Organization, which is to be attached to the Office of the Presidency, was published by the Egyptian press September 13. The press account follows:

"Article 1--A General Marine Wealth Development Organization is to be established and attached to the Presidency. It is to be regarded as an economic establishment governed by Law No. 265 for 1960.

"Article 2--This organization will serve the following purposes:

"1. Contribute to the development of the national economy of the Republic by working out projects for horizontal and vertical expansion of fisheries.

"2. Increase the potentialities of the fishing fleet and improve fish transport; improve fish storage, marketing, diversification of products and scientific and technical research.

"3. Improve fishery cooperatives financially and technically, through participation in establishing them, participation in capital, advancing loans and extending necessary assistance in the light of the general cooperatives policy.

"4. Found or participate in founding establishments and companies and supervising and guiding their activities.

"The Organization may also collaborate with other establishmens to achieve its objectives.

"Article 3--The funds of the organization will consist of:

"1. The capital of certain companies which will be defined by Republican decree.

"2. The profits realized by the Organization projects.

"3. The appropriation which will be set aside in the State Budget for the Organization's machinery.

Egypt (Contd.):

"4. Loans and aid to be granted by the State.

"5. Funds raised by organizations and accepted by the board of directors.

"Article 4--The Board of Directors of the Organization will consist of a chairman and a number of members to be appointed by a Republican decree defining the remuneration of each director and the term of their appointment.

"Article 5--The Board of Directors of the Organization will be the supreme authority to supervise its affairs and plan its policy. It will have the right to take any measures deemed necessary to achieve the Organization's aims.

"The decree provides that the financial year for this organization shall begin on July 1 and end at the end of June the following year.

"It is also stipulated that a further Republican decree will be issued establishing the organization's budget.

"It also provides that the Director of the Organization shall be appointed by a Republican decree fixing his remuneration.

"The decree comes into effect from the date of its promulgation in the 'Official Journal'."

The Hydrobiological Institute is expected to be transferred from the Ministry of Agriculture to a new General Marine Wealth Development Organization, attached to the office of the Presidency. (United States Consulate in Alexandria, September 14, 1961.)

German Federal Republic

FISH MEAL PRICES, SEPTEMBER 8, 1961:

Prices reported at Hamburg Commodity Exchange as of September 8, 1961, for fish meal delivered ex-Hamburg warehouse, or c.& f. West German sea port were as follows:

Type of Fish Meal	Protein Content (%)	Delivery	DM/Metric Ton 1/	US$/Short Ton
German fish meal	50-55	loco/ prompt 2/	555.00	125.87
" " "	55-60	" " 2/	565.00	128.14
" " "	60-65	" " 2/	580.00	131.54
" " " std. brands	60-65	Sept. 1961	618.50	140.28
" herring meal	64-68	prompt 3/	630.00	142.88
Peruvian fish meal	65-70	loco 2/	532.50	120.78
" " "	65-70	Oct. 1961-Apr. 1962	545.00	123.61
Angola fish meal	65-70	Sept. 1961	610.00	138.35
Portuguese fish meal	50-55	prompt/Oct. 1961	545.00	123.61
Icelandic herring meal	70-75	loco/ Oct. 1961 2/	660.00-670.00	149.69-151.76

1/Values converted at rate of 4.0 deutsche marks equal US$1.
2/"Loco" means where and as it is at the time of sale, and all subsequent expenses to be at buyer's account.
3/Delivered coastal location.

As compared with August 4, 1961, fish-meal prices on the Hamburg exchange on September 8, 1961, were mixed, with both domestic and imported fish meal somewhat higher on the average except for Peruvian meal which was down about $4-5 a short ton. (United States Consulate, Bremen, September 12, 1961.)

Ghana

SOVIETS AGREE TO SUPPLY FISHING VESSELS:

The Government of Ghana signed an agreement with the Soviet Union in Accra on August 27, 1961, under which the Soviets will supply 10 fishing vessels valued at ŁG1,670,000 ($4,676,000). The vessels will be delivered within three years, the first deliveries arriving in 1962. Each vessel will carry a crew of 20 and have a capacity for 185 metric tons of fish. The agreement was signed on behalf of the Ghana Government Minister of Agriculture, and the Trade Councelor of the Soviet Embassy signed for the Soviet Union. (From United States Embassy, Accra, August 31, 1961.)

Greece

CONTROLS ON CANNED FISHERY PRODUCTS IMPORTS:

Canned fish products are included in Greek import commodity List F-100 which covers commodities for which a cash deposit of 140 percent of c.i.f. value (100 percent of c.i.f. invoice value plus a 40 percent deposit of c.i.f. value against import duties and taxes) is required at the time of application for an import approval. This requirement applies to all commodities included in List F-100 regardless of country of origin. However, there is no provision in current licensing regulations which requires importers to make the cash deposit within prescribed time-limits prior to shipment of the goods involved. The advance deposit may be made at any time before the date of shipment of the goods, which is evidenced by the date of issuance of the relevant bill of lading. Accordingly, if a Greek importer were notified promptly (i.e. by cable) of the scheduled date of shipment of his order he could make the deposit immediately before that date. What is important and should be borne in mind by foreign suppliers is that a prior-to-shipment import approval is essential in the case of shipments consigned to Greek importers. Settlement of shipping documents covering unauthorized shipments (i.e. goods not covered by a validated import approval issued prior to shipment) may be effected only against payment of onerous cash penalties.

There is no practical way whereby foreign suppliers of canned products may assist their Greek customers by financing advance cash deposits. Greek regulations do not permit Greek banks to finance these products. Moreover, foreign exchange remittances made to beneficiaries in Greece cannot be re-exported under currency control regulations. Accordingly there is no legitimate way whereby foreign suppliers could recover amounts remitted to their customers.

The advance deposit requirement constitutes a burden on the trade of all foreign countries shipping to Greece. However, it is in line with the Greek Government's over-all trade policy--in effect since the liberalized trade system was adopted in 1953--of seeking to slow down the tempo of imports by placing added burdens on the cash assets of importers, thereby reducing the volume of imports which they can finance on a cash basis.

Greece in its foreign trade relations continues to run a large deficit in its merchandise balance; for example, Greek exports in 1960 covered only about 40 percent of the value of imports into the country. It is hardly likely, therefore, that the Greek Government will consider altering its import regulations designed to limit the inflow of foreign products in the near future, the United States Embassy in Athens reported on August 29, 1961.

Iceland

FISHERY PRODUCTS EXPORTS TO SOVIET BLOC, JANUARY-JUNE 1961:

In the first six months of 1961, Iceland exported 16,757 metric tons (valued at US$3,150,000) of fishery products to the Soviet Bloc countries. The decline in Iceland's volume of trade with the Bloc countries which occurred during the first half of 1960 continued during January-June 1961. Over-all trade in both directions with the Bloc dropped from 24.2 percent of total trade (imports and exports) with all countries to 18.0 percent. The Bloc share of total trade (imports and exports) during the first half of 1959 amounted to 34.0 percent.

Icelandic Exports to Soviet Bloc, January-June 1961

Country and Commodity	Quantity	Value f.o.b.	
	Metric Tons	1,000 IKr.	US$ 1,000
Czechoslovakia:			
Frozen fish	1,571.0	23,285	613
Canned fish	60.6	3,569	94
Frozen herring	4,128.8	21,634	569
Fish meal	354.2	1,546	41
Herring meal	645.9	2,829	74
Cod-liver oil	474.2	4,401	116
Total	7,234.7	57,264	1,506
East Germany:			
Frozen herring	377.5	1,867	49
Salt herring	2,658.5	21,030	553
Total	3,036.0	22,897	602
Hungary:			
Canned fish	1.3	177	5
Cod-liver oil	31.0	288	8
Total	32.3	465	13
Poland:			
Frozen herring	1,870.7	9,757	257
Salt herring	2,000.0	14,890	392
Fish meal	402.7	1,694	45
Herring meal	302.1	1,284	34
Cod-liver oil	130.0	1,182	31
Total	4,705.5	28,807	759
Rumania:			
Frozen herring	30.4	151	4
Salt herring	600.0	4,161	110
Total	630.4	4,312	114
U. S. S. R.:			
Frozen herring	648.7	2,598	68
Salted herring	351.4	2,583	68
Total	1,000.1	5,181	136
China:			
Cod-liver oil	118.0	1,108	29
Grand Total (All Countries)	16,757.0	120,034	3,159

Note: Values converted at rate of 38 kronur equal US$1.

The Bloc share of all Icelandic exports (about 92.5 percent was fishery products) decreased from 31.9 percent during the first six months of 1960 to 11.3 percent during January-June 1961. Imports from the Bloc increased slightly from 20.3 percent to 23.2 percent, comparing the same periods.

While exports to Czechoslovakia and Poland during the first six months of 1961 increased considerably, there was a sharp decline in exports to East Germany and the Soviet Union, in particular. Frozen fish accounted for most of the decline in exports to those countries. During the first half of 1960 the Soviet Union was the leading buyer of frozen fish and the quantity purchased by East Germany was only exceeded by the United States. As of the end of June this year, no frozen fish had been exported to the Soviet Union or East Germany. (United States Embassy in Reykjavik, August 23, 1961.)

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Iceland (Contd.):

FISHERY TRENDS, MID-AUGUST 1961:

The ex-vessel value of Iceland's 1961 summer herring landings has been estimated at 238.1 million kronur (US$5.4 million at rate of 43 kronur to US$1). It is difficult to estimate the final export value of the products derived from the landings because of frequent fluctuations in meal and oil prices; however, it probably will be about 500 million Icelandic kronur (US$11.6 million). This has been one of the best seasons, both with regard to the quantity and quality of the herring. On August 19, 1961, the total herring catch amounted to 200,263 metric tons as compared with 104,577 tons for the same period of 1960. It was reported by the Icelandic press on August 17 that an agreement with the Soviet Union for 20,000 additional barrels of salted herring had been signed.

The press also reported on August 22 the approval of an Icelandic proposal at the Nordic Council Economic Affairs Committee in Oslo to establish a committee to discuss the problem of fisheries in the Nordic countries in connection with membership in the European Economic Community. The committee was to convene in Reykjavik early in September, the United States Embassy in Reykjavik reported on August 24, 1961.

Italy

JOINT ITALIAN-JAPANESE COMMITTEE TO INVESTIGATE FROZEN TUNA REJECT CLAIMS:

Japan early in September 1961 formally ratified the proposal to form a joint Italian-Japanese investigation committee to study the problem of frozen tuna reject claims in Italy. The three members appointed to represent Japan consist of one representative of a large Japanese fishing company located in Genoa, a representative of another Japanese fishing company in Milan, and a third member who will represent the Japan Export Trade Promotion Organization (JETRO).

The committee will be located at Genoa, Italy, and was expected to discuss at its first meeting freezing conditions aboard Japanese fishing vessels and supervision exercised by Italy after the Japanese frozen tuna are landed on the docks. Tenure of the committee is six months. (Suisan Keizai Shimbun, September 7, 1961.)

Japan

EXPORTS OF CANNED TUNA IN OIL, 1956-60:

Japanese exports of canned tuna in oil of 1,340,469 cases during calender year 1960 were 20,608 cases or 15 percent less than in

Table 1 - Japanese Exports of Canned Tuna in Oil by Destination

Destination	1960	1959	1958	1957	1956
	(Actual Cases)				
West Germany	605,239	415,365	265,886	252,891	144,972
Canada	175,177	153,093	145,844	143,626	127,922
Switzerland	111,413	105,915	76,302	110,118	135,308
Belgium	50,765	87,738	67,110	72,389	84,689
Netherlands	38,774	44,595	32,102	51,429	61,861
Lebanon	48,139	67,263	22,503	58,736	26,210
Saudi Arabia	32,532	71,581	49,625	48,902	23,982
Britain	17,559	69,143	41,570	72,849	22
Italy	8,188	43,212	30,803	150,302	75,864
Others 1/	252,683	303,172	140,511	223,733	197,446
Total	1,340,469	1,361,077	872,256	1,184,975	878,276

1/Includes exports to United States, which were not shown separately.

Table 2 - Japanese Exports of Canned Tuna in Oil by Species, 1956-60

Species	1960	1959	1958	1957	1956
	(Actual Cases)				
Albacore	337,640	268,454	242,972	405,371	238,872
Skipjack	166,629	668,039	315,779	163,880	156,812
Other tuna	836,200	424,584	313,505	615,724	482,592
Total	1,340,469	1,361,077	872,256	1,184,975	878,276

Japan (Contd.):

1959, but 468,213 cases or 35 percent more than in 1958.

West Germany was the principal buyer with 605,239 cases, or 45 percent, of the total exports. While the exports of the skipjack and albacore packs have fluctuated substantially, there has been a steady increase in the exports of other tuna from 1958 through 1960.

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EXPORTS OF CANNED TUNA IN OIL, APRIL-JULY 1961:

Data compiled by the Export Canned Tuna Producers Association show that the amount of canned tuna in oil approved for export April-July 1961 amounted to over 521,000 actual cases, equivalent to about 390,000 standard cases (48 7-oz. cans). This represents a considerable increase over the same period in 1960 and 1959 when exports totaled 337,724 and 468,695 actual cases, respectively. (Suisan Tsushin, September 11, and April 24, 1961.)

Japanese Exports of Canned Tuna in Oil, April-July 1959-61 and Annual Totals for 1959-60

Country of Destination	1961	1960		1959	
	April-July	April-July	Fiscal Year Total (April-March)	April-July	Fiscal Year Total (April-March)
	(Actual Cases)				
Germany	166,218	122,658	438,906	126,436	484,808
Canada	107,405	67,998	151,754	48,720	160,385
Netherlands	45,531	27,721	62,999	30,996	85,863
Switzerland	27,431	26,709	63,573	11,933	36,918
Belgium	19,889	22,042	53,197	37,705	92,360
England	12,754	10,150	18,489	26,954	105,135
Italy	4,010	1,800	15,337	19,354	26,584
Other countries	138,017	58,646	279,561	166,597	485,063
Total	521,255	337,724	1,083,816	468,695	1,477,116

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EXPORT PRICE OF CANNED ALBACORE TUNA TO BE RAISED:

The Japan Canned Foods Exporters Association's Tuna Standing Committee met on September 5 to discuss a price increase for canned albacore tuna in brine. The committee agreed on a new price of $9.40 a case (48 7-oz. cans) f.o.b. Japan. This is an increase of 25 cents a case from the old price of $9.15 a case.

However, on September 7, the Canned Tuna Packers Association voted on an increase of 50 cents a case for canned albacore. This means that tuna packers and exporters will now have to resolve their differences over the amount of the increase.

Pending developments at the forthcoming price negotiations, the Packers Association may bring up the question of raising once again the price of canned light meat tuna in brine. Present price of canned light meat tuna in brine (not including yellowfin) is $7.50 a case, and canned yellowfin $7.60 a case, f.o.b. Japan. (Suisan Tsushin, September 6 & 8, 1961.)

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CANNED TUNA IN BRINE EXPORT PRICE RAISED:

At a meeting on September 19, 1961, the Japan Canned Tuna Packers Association officially voted to accept the agreement arrived at the joint meeting held on September 14-15 with the Exporters Association to raise the export price of canned whitemeat tuna in brine by 40 cents a case for September's sale and an additional 10 cents a case beginning in October. The Packers Association also agreed on raising the export price of canned lightmeat tuna in brine (not including yellowfin) by 10 cents a case. Thus, the new export price of canned white-meat tuna in brine was $9.55 a case f.o.b. Japan for September and was $9.65 a case beginning in October. The raising of the export price of canned lightmeat tuna in brine other than canned yellowfin by 10 cents a case brought the price of that pack to the same level as that for canned yellowfin, or $7.60 a case f.o.b. Japan, effective since late June.

Japan (Contd.):

Some members of the Packers Association were concerned that the export price of canned yellowfin was not raised also, and agreed to the new prices only after attaching the condition that every effort should be made to sell, as quickly as possible, the 79,000 cases of canned yellowfin held in stock as of mid-September 1961.

At the sale of canned tuna scheduled for September, it was expected that 100,000 cases each of canned whitemeat tuna and canned lightmeat tuna would be offered. (Suisan Tsushin September 16, and 20, 1961.)

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FROZEN TUNA EXPORTS TO U. S., APRIL 1-AUGUST 19, 1961:

The Japan Export Frozen Tuna Products Association has furnished the following statistics on frozen tuna exports to the United States directly from Japan for April 1-August 19, 1961. Exports of yellowfin tuna totaled 14,186 short tons. Price range (per short ton f.o.b. Japan) for size categories of yellowfin were as follows: 20-80 pounds (gilled and gutted) $270-$285; 20-100 pounds $265-$290; 80-100 pounds $265-$280. Yellowfin dressed $275-$285, fillet $275-$300. Exports of frozen albacore were 5,137 short tons with a price range of $320-$360 per ton.

Japan's export target of frozen tuna of Atlantic origin for April 1-October 31, 1961, was 11,950 short tons, consisting mostly of albacore. Price range at transshipment point (per ton f.o.b.) Cristobal or Port of Spain was: albacore $270-$345; yellowfin (gilled and gutted) $240-$280; yellowfin dressed $220-$270. Data not available on quantity of tuna transshipped to the United States from Atlantic.

For April 1-October 31, 1961, Japan's export target for Atlantic frozen tuna to Italy is 17,831 long tons; Yugoslavia 5,292 long tons; other European countries 2,649 long tons. Price range f.o.b. transshipment points (Dakar or Freetown): albacore $265-$300 per long ton; yellowfin (gilled and gutted) $215-$240; yellowfin dressed $230-$260; yellowfin fillet $240. These were the prevailing price ranges reported during August. (United States Embassy, Tokyo, September 13, 1961.)

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HIGHER EXPORT PRICES FOR ATLANTIC OCEAN FROZEN TUNA CONSIDERED:

The Atlantic Ocean Tuna Committee of the Frozen Food Exporters Association of Japan met on September 7, 1961, to discuss amounts and prices of Atlantic frozen tuna to be exported between October and December 1961. The Tuna Committee agreed to raise the price of yellowfin and big-eyed tuna from US$5 to $15 a metric ton; establish two price classifications, one for big-eyed tuna and the other for yellowfin tuna, with albacore and bluefin tuna under the yellowfin classification; and sell lots of mixed fish with more than 50 percent yellowfin (including albacore and bluefin) at the same price as yellowfin. The Committee also set the amount of frozen tuna to be exported to Italy for the month of October at 1,600 metric tons and for November at 1,000 tons, but did not release a figure for December.

Decisions reached by this Committee are not final. This Committee as of early September examined prices by markets and was expected to come out with definite data the week of September 11 on the amount of the price increase it will propose, and later plans on holding a joint meeting with producers to discuss the matter. (Suisan Keizai Shimbun, September 10, 1961.)

Export prices (c.i.f.) by markets furnished by the Tuna Committee for Atlantic frozen tuna follow:

Exports to:	Yellowfin	Big-eyed
	(Per Metric Ton)	
Italy	$290	$270
Yugoslavia	$300	$285
Czechoslovakia	$290	$275
Africa (Libya, Tunisia, etc.)	$300	$285

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INCREASE REPORTED IN FROZEN TUNA PRICES:

The August 24, 1961, Japanese periodical Suisan Tsushin reported that the catch of yellowfin tuna by the Japanese had been light. Therefore, the price of frozen yellowfin for export to the United States was rising day by day. As of August 24, gilled and gutted frozen yellowfin was reported selling at US$290 a short ton f.o.b.--an increase of $50 or so from the same date a year ago. Fillets were about $300 a ton, while loins sold as high as $630 a ton. The price of albacore tuna also was advancing and was reported to have reached $360 a ton.

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Japan (Contd.):

FROZEN TUNA EXPORT PRICES AT NEW HIGH:

Japanese prices of frozen tuna for export to the United States in mid-September 1961 were reported to have reached a new high. Prices f.o.b. Japan are: frozen yellowfin gilled and gutted $300 a short ton, yellowfin fillets $310 a ton, loins $420 to $430 a ton, albacore about $370 a ton.

As of mid-September the trend was for increased exports of fillets to the United States, as well as loins. Also, exports of tuna other than albacore and yellowfin were on the increase, indicating a shortage of tuna in the United States. (Suisan Tsushin, September 18, 1961.)

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TUNA MOTHERSHIP RETURNS WITH FULL TRIP:

A Japanese tuna mothership No. 3 Tenyo Maru (which departed for the South Pacific tuna area in early May) arrived at the port of Shimizu, Shizuoka Prefecture, on September 7, 1961. The vessel caught a total of 2,868 metric tons of albacore, 1,974 tons of yellowfin, and 4,843 tons of spearfish, sharks, and other species of tuna. (Suisan Keizai Shimbun, September 7, 1961.)

Translator's Note: Available catch reports from Japanese trade journals show that for the months of May and June, yellowfin predominated in the catch of the tuna motherships Tenyo Maru and Nojima Maru, but their catch for the season consisted mostly of albacore. The Nojima Maru, caught 897 tons of yellowfin and 465 metric tons of albacore by late June. As of early September, that vessel was reported to have caught 3,520 metric tons of albacore and 1,380 metric tons of yellowfin, which means that for the months of July, August, and part of September the vessel caught about 3,000 tons of albacore and slightly less than 500 tons of yellowfin. The Tenyo Maru was estimated to have caught 1,900 tons of albacore and slightly less than 700 tons of yellowfin during the months of July and August.

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TUNA MOTHERSHIP RETURNS FROM FISHING GROUNDS:

The Japanese tuna mothership Nojima Maru (8,503 gross tons) was expected to reach her catch target of 7,500 metric tons of frozen fish, primarily tuna, around September 22 and was scheduled to return to Kobe, Japan, on October 5, 1961. The vessel fished in the South Pacific near the Fiji Islands.

Nojima Maru was expected to bring back 4,100 metric tons of frozen fish, of which 2,000 tons would be frozen albacore and 500 tons frozen yellowfin. Earlier in the season, part of the Nojima Maru's catch was shipped directly to Japan (three shipments) and one transshipment of 770 metric tons of frozen tuna was made to San Francisco. Including these shipments, Nojima Maru caught a total of 3,520 metric tons of albacore and 1,380 metric tons of yellowfin.

Catch of albacore was exceedingly good this year as compared to previous years, and in view of prevailing firm tuna prices the Nojima Maru is expected to show a profit for the first time. (Suisan Tsushin, September 11, 1961.)

Translator's Note: Two other Japanese tuna motherships are still on the fishing grounds: The Koyo Maru (7,500 gross tons) with a catch target of 7,500 metric tons of fish, mainly tuna; and the Jinyo Maru (7,200 gross tons) with a catch target of 3,500 metric tons of tuna. Both motherships departed for the South Pacific tuna fishing grounds near the Fiji Islands in August.

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FROZEN TUNA FROM FIJI ISLANDS TRANSSHIPPED TO THE UNITED STATES:

A Japanese fishing company, which operates the tuna mothership Nojima Maru (8,503 gross tons), transshipped 860 short tons of the mothership's catch to San Francisco via Suva, Fiji Islands. The carrier vessel Tsukishima Maru (1,170 gross tons) carrying this shipment departed Suva on August 24.

The carrier vessel (No. 35 Banshu Maru) of another Japanese fishing company, was due to pick up 750 short tons of frozen tuna from the same company's tuna mothership Koyo Maru for delivery to the United States. This transfer was also to take place at Suva, and the Banshu Maru departed Suva on September 6. This vessel was scheduled to transport an additional 750 short tons of frozen tuna to the United States in early October. (Suisan Keizai Shimbun, September 7, 1961.)

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Japan (Contd.):

FISHERY AGENCY STUDYING RELAXATION OF REGULATIONS ON PORTABLE VESSELS FOR TUNA MOTHERSHIPS:

The Japanese Fishery Agency in August 1961 was re-examining the licensing policy for portable-vessel-carrying tuna motherships so as to revise it to make it more realistic. Under the present system, which was approved in April of this year, owners of large tuna vessels who wish to fish with one portable vessel (size limited to 20 tons) must withdraw from the tuna fishery one distant-water tuna fishing vessel; those who wish to fish with two portable vessels must put up the equivalent of 50 tons of distant-water fishing vessel rights, and they can utilize the unused tonnage of the vessel withdrawn from the tuna fishery to enlarge other medium and distant-water tuna vessels under the tonnage replacement system. As for owners of vessels who fished with one portable vessel prior to the enactment of the present regulations and who wish to fish with two portable vessels, they are required to put up 25 tons of distant-water tuna vessel rights for the second portable vessel.

Under the direction of the Fishery Agency, the 16 companies planning to operate portable-vessel-carrying tuna motherships formed an association whereby this association would purchase distant-water fishing vessel rights and allocate those rights to its members by lottery. This would then eliminate unnecessary competition between companies to purchase vessel rights, which otherwise would drive the market for vessel rights higher. A total of 31 large tuna vessels was registered with the association, and the association was to have completed procuring distant-water tuna fishing vessel rights by the end of August. As of late August, a total of 15 vessels (out of the 31 vessels listed) has been licensed to operate as portable-vessel-carrying tuna motherships, each carrying one portable vessel.

The association is reported not to have been successful at all in procuring vessel rights for replacement purposes. The association claims the regulations are too strict and wants them changed. It also claims the price of distant-water tuna vessel rights is very high. Then, too, none was available for sale, which made it impossible for the association to accomplish its objective before the August 31 deadline.

The Fishery Agency realizes that present requirements are too stringent and feels that the Agency should help the association along in developing the portable-vessel-carrying tuna mothership industry and is expected to liberalize existing regulations. However, the Fishery Agency does not want to jeopardize that segment of the tuna fishing industry connected with the operation of ordinary tuna fishing vessels and will make a final decision after consulting with the National Federation of Tuna Fishing Cooperative Associations. (Suisan Keizai Shimbun, August 2; Nippon Suisan Shimbun, August 21, 1961.)

Translator's Note: The cost per ton of a distant-water tuna vessel right is said to be well over $800. This means that if a boat owner wishes to build two portable boats, he must, under the present regulations, procure the right to 50 tons of a distant-water tuna fishing vessel for replacement purposes. At present prices, this would cost him at least $40,000 (50 x $800) before he can even start building two portable boats of less than 20 tons each.

The Fishery Agency has not yet decided on the disposition of a Japanese fishing company's large tuna vessel No. 21 Kuroshio Maru, which was specially licensed to fish on an experimental basis with 6 portable vessels last year. The question is whether it should permit this vessel to operate this year with 5 portable vessels or with 4 portable vessels. (Suisan Keizai Shimbun, August 2, 1961.)

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CANNED SALMON 1960 PACK CARRY-OVER AS OF MARCH 31, 1961:

As of March 31, 1961 (end of fiscal year 1960), the carry-over from the Japanese 1960 canned salmon pack amounted to 219,390 cases (48 1-lb. cans per case). The carry-over included 188,110 cases of sockeye or red salmon, 15,540 cases of silver, 12,230 cases of king, 3,050 cases of pink, 100 cases of chum, and 360 cases of salmon tidbits. Included in the total carry-over was 12,500 cases of red salmon packed from frozen salmon purchased from the United States. (United States Embassy in Tokyo, September 12, 1961.)

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CANNED SHRIMP EXPORTED TO U. S. FOR FIRST TIME:

A large Japanese fishing firm began to export 5,000 cases of canned shrimp to the United States, for the first time in July 1961 and completed the entire shipment by mid-August 1961. It was rumored that the selling price was not quite $15 per case f.o.b. as originally planned. In August, some 10,000 cases were expected to arrive from the North Pacific shrimp factoryship and the company intends to export them all to the United States and Europe.

The company which operated the world's first shrimp-canning factoryship in the Bering Sea this year, will handle more than half of the export quantity and the remainder through 2 or 3 large exporters. Three other large fishing firms are pushing their plans to also fish and can shrimp in the Bering Sea next year with newly-acquired machinery.

With the canned shrimp, frozen shrimp will also be exported to the United States through San Francisco, and to Australia. Up to the present time, the firm operating this year's factoryship has been exporting annually some 1,000 metric tons of frozen shrimp produced in the Seto Inland Sea and Kyushu to the United States. Poor shrimp fishing in Japan this year has made it necessary for the firm to export the shrimp caught in the North Pacific.

The shrimp-canning factoryship (Eijin Maru) production target is 50,000 to 60,000 cases of canned and 3,500 tons of frozen shrimp. (Suisan Keizai Shimbun, August 2, 1961.)

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Japan (Contd.):

FROZEN SHRIMP IMPORTS FROM MEXICO VIA U. S. UP SHARPLY:

Since 1959, Japanese shrimp imports have shown a marked increase. In that year total shrimp imports amounted to 529,000 pounds, with Communist China being the principal supplier with 508,800 pounds (96 percent) and the balance from South Korea.

In 1960, Japanese shrimp imports rose to 1,370,000 pounds, with South Korea, Communist China, and Hong Kong accounting for 91 percent of the total. Imports in pounds were: South Korea 270,000, Communist China 454,000, Hong Kong 433,000, Kuwait 10,000, Australia 2,000, United States domestic 90,000, and Mexican re-exports from the United States 115,000.

During the first 5 months in 1961, Japan imported 1,420,000 pounds of shrimp which is more than for the entire year of 1960. Imports of shrimp of Mexican origin and re-exported from the United States accounted for 1,150,000 pounds or 81 percent of all shrimp imports for that period. Imports from other countries were, in pounds: United States domestic 124,000, South Korea 14,000, Communist China 31,000, Hong Kong 55,000, Iran 10,000, British North Borneo 18,000, and El Salvador 19,000. (United States Embassy, Tokyo, report dated August 23, 1961.)

Note: Information did not indicate type of shrimp, but most of the imports and re-exports from the United States were frozen shrimp.

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PRODUCTION REPORT FROM NORTH PACIFIC SHRIMP FACTORYSHIP AS OF AUGUST 2:

The Japanese shrimp factoryship Eijin Maru operating in the North Pacific reported that as of August 2, 1961, it packed 30,952 cases of canned shrimp and 3,000 metric tons of frozen shrimp. This was 50 percent of its production target.

Operations have proved to be satisfactory. In the beginning, the vessel canned about 250 cases a day, but beginning early in August the pack was increased to 600 cases a day.

Three other Japanese fishing companies are reported interested in North Pacific shrimp fishing and they are planning to operate shrimp factoryships next year. (Suisan Keizai Shimbun, August 17, 1961.)

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DEVELOPMENTS IN BERING SEA BOTTOMFISH FISHERY:

Japanese press reports appearing earlier this year indicated that 21 fleets with over 200 catcher vessels were planning to fish with long lines, trawls, and gill nets off the shelf extending out from the Russian coast between Cape Navarin and Cape Olyutorski. Subsequent news reports indicated that these fleets concentrated on halibut at the beginning of the season. As catch of halibut declined, they switched to fishing for sablefish (black cod), then for herring.

Catch of herring in August was reported to be good with some fleets averaging 200 tons a day. However, as of early September, saury fishing in Japan was in full swing, causing a sharp drop in the price of herring. The Bering Sea fleets in September were reported to have switched back to catching sablefish and other bottomfish. Reports indicate that many of these vessels may wind up the season in the red this year. (Source: Various Japanese periodicals.)

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EXPERIMENTAL FISHING SOUTH OF ALASKA PENINSULA IN 1960:

In 1960, three Japanese fishing companies were issued permits by the Fishery Agency to conduct exploratory fishing south of the Alaska Peninsula (off Kodiak Island). Operations were carried out August 20-September 25 in waters north of 53°30' north latitude and between 155° and 165° west longitude.

Seven vessels of the 70- to 80-ton class were employed in the exploratory operations.

The types of gear used were the Danish trawl, gill nets, longline, and midwater trawl. A total of 157 drags were made with the Danish trawls of which 53 were unsuccessful because of breaks in the nets caused by fouling on rocky bottom. The number of gill-net sets totaled 34, of which 23 were set on the ocean floor and the remainder were fished on the surface. Eighteen sets were made with long lines using a total of 1,015 baskets of gear. No success was had with midwater trawls or surface gill nets.

A total of 306.9 metric tons of fish were caught with rockfish, arrow-toothed halibut, and Alaska pollock accounting for 94 percent of the total catch. In order of importance in total quantity taken was rockfish with 150.3 metric tons, arrow-toothed halibut 79.5 tons,

Japan (Contd.):

Alaska pollock 57.9 tons, sablefish 10.2 tons, cod 6.7 tons, flounder 1.6 tons, and halibut 0.7 tons. Herring, the principal species sought, were not present in the area fished or, if present, were unavailable to the gear fished.

The Danish trawl caught 98.6 percent of the total catch followed by long lines with 1.1 percent and bottom gill nets 0.3 percent.

Regulations by the Fishery Agency prescribed that all halibut and salmon taken during the operations were not to be retained. It was reported that the halibut taken, together with 1 red salmon and 3 pink salmon were released.

Early in 1961, the same three companies submittee applications to the Fishery Agency for continuation of the exploratory operations which were started in 1960. These applications in August 1961 were under study. (From an August 16, 1961, report submitted by the Fisheries Attache, United States Embassy, Tokyo.)

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ENTRY OF DUTY-FREE FISH MEAL PRODUCED BY FACTORYSHIP OFF ANGOLA PERMITTED:

Following the announcement that a Japanese fishing firm planned on dispatching its fish meal factoryship Renshin Maru (14,094 gross tons) to the waters off Angola, the question was raised whether an import duty should be placed on the fish meal produced by the company's factoryship and brought back to Japan, inasmuch as the company planned on utilizing Angolan fishing vessels as catcher vessels. After fully considering this matter, the Japanese Government has decided to permit the free entry of fish meal produced by this company's factoryship since Peruvian fish meal is presently being entered free of duty into Japan. (Suisan Keizai Shimbun, September 9, 1961.)

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EXPORTS OF CANNED CRAB MEAT, 1956-60:

Exports of canned crab meat (including king, kegani, hanasaki) by Japan in 1960 amounted to 483,274 cases (48 8-oz. cans) or about 14.8 percent less than the 1956-60 average of 567,315 cases. The United States and the United Kingdom were Japan's best customers for canned crab meat. Purchases by those two countries varied between a low of 74.4 percent in 1960 to a high of 89 percent in 1956. Of Japan's total exports, the United States imported between a high of 52 percent in 1958 and a low of 46 percent in 1960.

Table 1 - Japan's Exports of Canned Crab Meat (all species), 1956-1960

Country of Destination	1960	1959	1958	1957	1956
	(Cases of 48 8-oz. Cans)				
United States	222,667	308,319	297,628	304,522	257,300
United Kingdom	135,785	192,370	181,802	244,697	210,026
France	42,900	15,307	722	445	-
Hawaii	6,671	8,268	7,813	5,117	5,151
Canada	3,021	11,355	7,562	10,438	10,860
Other European Countries	46,820	50,136	53,579	48,857	17,664
So. & Central America	1,486	1,819	1,013	1,122	613
Asia	1,593	2,148	305	12,278	11,132
Australia	19,090	13,421	18,788	15,543	9,278
Africa	1,668	1,995	2,022	2,887	1,091
Near East	896	756	1,478	3,177	1,239
Others	677	863	395	-	-
Total	483,274	606,757	573,107	649,083	524,354

Table 2 - Japan's Exports of Canned Crab Meat by Species, 1956-1960

Species	1960	1959	1958	1957	1956
	(Cases of 48 8-oz. Cans)				
King crab	306,044	488,025	447,290	399,113	223,124
Kegani crab	169,507	108,868	113,309	239,827	289,871
Hanasaki crab	7,723	9,864	12,508	10,143	11,359
Total	483,274	606,757	573,107	649,083	524,354

Table 3 - Japanese Exports of Canned Crab-Meat to U. S. by Species, 1956-1960

Species	1960	1959	1958	1957	1956
	(Cases of 48 8-oz. Cans)				
King crab	170,708	271,515	256,917	227,360	160,785
Kegani crab	51,659	36,004	40,178	76,912	93,605
Hanasaki crab	300	800	533	250	2,910
Total	222,667	308,319	297,628	304,522	257,300

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FISHERY LANDINGS AT YAIZU, AUGUST 1961:

Landings of tuna and other fish at the important Japanese tuna port of Yaizu during August 1961 totaled 7,628 metric tons; 1,779 tons, or 23 percent more than for August 1960. The value of the August 1961 landings was US$1,890,952, a gain of $59,333 or 3.2 percent over the August 1960 value. Ex-vessel prices for tuna continued to average higher than those paid a year ago.

Yaizu Fishery Landings, August 1961

Species	Metric Tons
Tuna:	
Albacore	149
Skipjack	3,152
Other	3,846
Mackerel	87
Other	394
Total August 1961	7,628
Total August 1960	5,849

Japan (Contd.):

Landings of all fish at Yaizu this year during January-August totaled 91,621 tons valued at $23,541,666 ex-vessel--3,260 tons more than last year in quantity and $3,363,750 more in value. (Suisan Keizai Shimbun, September 11, 1961.)

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LARGE FISHING FIRM SURVEYS SITES FOR ATLANTIC BASES:

The chief of the trade section of a large Japanese fishery firm left Tokyo on September 19, 1961, to make a survey of possible sites for constructing fishing bases in the Atlantic Ocean area. He expected to visit such places as Dakar, Las Palmas (Canary Islands), and Guatemala, but would first visit Las Palmas where his company plans to build a cold-storage plant. (Nippon Suisan Shimbun, September 18, 1961.)

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PRODUCTION OF FISH SAUSAGE AND HAMS INCREASES:

Production of fish (tuna and tuna-like are generally the principal ingredients) ham and sausages in Japan for the first six months of 1961 was estimated at 36,200 metric tons. This represents an increase of about 30 percent over the same period last year, when production totaled 27,700 metric tons. Production of fish hams showed the greatest increase, from 5,300 tons in January-June 1960 to 7,500 tons in the same period of 1961, or about a 42 percent increase. Fish sausage production this year totaled 28,700 tons, as compared to 22,400 tons last year, an increase of about 28 percent.

Hopes were held of producing over 100,000 tons of fish sausages and fish hams this year (1960 production was 85,500 tons), but it seems that this target may be somewhat difficult to achieve. Production was down in February and March (tuna-like fishes which are used extensively in the production of fish sausages and hams were in very short supply at that time) but picked up in April. Production for June 1961 exceeded by 60 percent that of June 1960. The increase in 1961 production is attributed primarily to the establishment of a number of large new fish sausage-ham plants. (Suisan Keizai Shimbun, September 10, 1961.)

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REFRIGERATED CARRIER VESSELS UNDER CONSTRUCTION:

The refrigerated carrier vessel Kazushima Maru (3,800 gross tons), which is being built for one of Japan's large fishing companies, is expected to be completed in December. This company is also constructing a 9,500-ton refrigerated carrier vessel named Takashima Maru, which is scheduled to be launched in mid-December. (Suisan Keizai Shimbun, September 8, 1961.)

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SOVIET FISHERIES MISSION COMMENTS ON JAPANESE NORTH PACIFIC HIGH-SEAS FISHING OPERATIONS:

In June and July 1961 an eight-man Soviet fisheries mission inspected Japanese high-seas fishing operations in the North Pacific and shore installations at Hokkaido, Japan. This mission was in exchange for an eight-man mission sent by Japan to Kamchatka and Sakhalin in June 1961.

The Soviet mission was divided into three groups: (1) mothership team, (2) Hokkaido team, and (3) research ship team.

The mothership team boarded the Japanese North Pacific salmon mothership Meisei-Maru.

The Hokkaido team visited fish markets, salmon canneries, shipyards, can and net manufacturing plants, a mink farm, research stations, and fish hatcheries.

The research team went aboard the Japanese research vessel Hokko-Maru, to observe experiments testing the fishing efficiency of gill nets having meshes of varying sizes.

The Soviet mission held several press conferences after completion of their scheduled trip commenting that (1) equipment on Japanese fishing vessels was very good but accommodations for the crews were very poor; (2) standards were high in can manufacturing and salmon canning but not as mechanized as in the U.S.S.R.; (3) canning techniques were good but Soviet canned salmon and mackerel are of better quality; (4) Soviet Union was releasing 2 billion young salmon in the next two years compared to Japan's planned schedule to release 800 million; (5) Japan must exert greater efforts in the field of salmon propagation for the protection of the salmon resources common to both countries; (6) additional experts should be added to the exchange missions; (7) Japan should expand its restricted fishing area because of poor spawning conditions and increased catches by the Japanese fishing fleets outside the restricted or regulated area of North Pacific Soviet-Japanese convention waters.

Six members of Japan's fisheries mission to U.S.S.R. inspected fishery operations in West Kamchatka and 2 men observed research work conducted on a Soviet survey vessel. (U. S. Embassy, Tokyo, August 9, 1961, despatch.)

Libya

FISHERIES TRENDS, AUGUST 1961:

The tuna fishing season in Tripolitania, which occurred during the second quarter of

Libya (Contd.):

1961, was reported a failure by reliable unofficial sources due to the non-appearance of any sizable schools of tuna for the first time in years. No large catches were reported, and coastal fishermen at the end of June were pulling in their nets. It appeared likely that the several tuna canneries on the Tripolitanian coast would have to buy fish, probably from the Japanese. Predatory fish, such as shark and dogfish, were thought to have driven the schools away.

The appearance of Greek sponge fishing boats in April signified the opening of the season in Tripolitania. Reportedly dissatisfied with high license fees in Tripolitania, they shifted their operations to Cyrenaica, but results of their operations were not known as of mid-August this year.

In addition to the German fisheries experts who visited Libya in the first quarter, a Nationalist Chinese expert was reported in Tripoli at the end of June. The Government was apparently welcoming advice regarding its earlier decisions (in January this year) to establish a Federal Fisheries Service. Finally a Ministry of National Economy order, published in June, established a temporary Fisheries Affairs Office under the Ministry. (United States Embassy, Tripoli, report of August 25, 1961.)

Mexico

EX-VESSEL SHRIMP PRICES AS OF AUGUST 28, 1961:

On August 23, 1961, ex-vessel shrimp prices at Mexico's Gulf ports of Carmen and Campeche increased again. Due to prevailing high prices, it was reported that practically no shrimp were being peeled and deveined in that area. A further increase in ex-vessel prices took place on August 28 when prices increased 2 cents a pound for 36-40 count shrimp and one cent a pound for 41-50 count shrimp. (United States Embassy in Mexico City, August 25 and 30, 1961.)

Ex-Vessel Prices, Carmen-Campeche, All Species (Headless)

Count per Lb.	August 28	August 23	August 18	July 26
	(U. S. Cents a Pound)			
U/15	78	78	74	64
16/20	72	72	68	57
21/25	66	66	62	52
26/30	60	60	57	47
31/35	56	56	51	42
36/40	50	48	45	37
41/50	43	42	39	32
51/65	36	36	34	27
66 +	18	18	20	15

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IMPORT PERMIT REQUIRED ON MANY FISHERY PRODUCTS:

Effective June 28, 1961, the Mexican list of products requiring a prior import permit includes many fishery products. Import control on fishery products applies also to entries into Mexican free zones and perimeters.

The fishery products listed are: Tariff Schedule Number and Product: 040.00.00, lobsters; 040.00.01, oysters in the shell; 040.00.98, shellfish and mollusks, not specified; 040.00.99, fish; 041.00.01, squid, frozen; 041.00.22, shrimp, fresh or chilled; 041.00.03, shrimp, frozen; 041.00.05, huachinango (porgy), frozen; 041.00.07, lobster, frozen; 041.00.10, salmon, fresh or chilled; 041.00.11, salmon, frozen; 041.00.12, sardines, fresh or chilled; 041.00.13, sardines, frozen; 041.00.98, fish, fresh, chilled, or frozen, not specified; 042.00.00, herring, smoked, cooked, salted, salt-pressed, or dried; 042.00.01, cod, smoked, cooked, salted, salt-pressed, or dried; 042.00.02, shrimp, smoked, cooked, salted; salt-pressed, or dried; 042.00.03, salmon smoked, cooked, salted, salt-pressed, or dried; 042.00.04, sardines, smoked, cooked, salted, salt-pressed, or dried; 042.00.96, foodstuffs, containing fish, crustaceans, shellfish, or mollusks, not hermetically packed, not specified; 042.00.97, crustaceans, shellfish or mollusks, smoked, cooked, salted, salt-pressed, or dried, not specified; 042.00.98, fish, cooked, salted, salt-pressed, or dried, not specified.

Mexico added the following to the above list, effective July 28: 892.09.05, fish nets of vegetable fibers; 892.09.06, fish nets of artificial or animal fibers or mixtures thereof. Effective July 29: 042.00.99, fish, smoked, not specified. (Foreign Commerce Weekly, August 14 and September 11, 1961.)

Netherlands

OYSTER INDUSTRY PLANS FOR SURVIVAL WHEN PRODUCING AREA IS CUT OFF FROM SEA:

To prevent a reoccurrence of the disastrous floods of January 31, 1953, in the southwestern part of the Netherlands, the Government established a special study commission,

Netherlands (Contd.):

the so-called Delta Commission, which advocates a considerable shortening of the Dutch coastline, especially in the south-western district. Such a procedure would not only make defense against the sea easier, but would also lead to the creation of huge bodies of fresh water, to be filled by the Rhine River.

The Dutch Parliament decided in principle to follow the advice of the Delta Commission. One of the estuaries to be cut off from the sea is the Oosterschelde, the artery of the Dutch oyster industry. Holland is the second oyster-producing country in Europe, but in mechanization and scientifically-guided control of predators, parasites, and diseases, it ranks among the first in the world.

Well over 30 million Dutch oysters were marketed in the 1960/61 season, and the town of Yerseke, with its large oyster storage basins and its important fleet (it is the third fishing port of the Netherlands) flourishes.

Though it will take some 15 years before the Oosterschelde is cut off from the sea, Zealand oystermen are already faced with the problem of whether to advise their sons to choose this very specialized profession. The construction of the huge enclosure dam in the Oosterschelde will no doubt mean the end of Yerseke as a European oyster center, but will it also mean the definite and irrevocable loss of the Dutch oyster industry? Is it really impossible to grow oysters on a commercial scale in other areas on the Dutch coast, or to execute engineering works to make a well-chosen section suitable for a profitable cultivation of oysters?

The Minister of Agriculture and Fisheries ordered investigations aimed at perpetuation of the Dutch oyster industry. A field laboratory of the Netherlands Institute for Fishery Investigations was set up in Wemeldinge; the work began there in 1955, efforts being made to rear oyster larvae indoors.

It can now be concluded from these investigations that growth and fattening of oysters is possible under conditions differing considerably from those prevailing in the oyster district of the Oosterschelde. When an appropriate technique can be developed, oysters can be grown on sandy bottom at low current velocities. The phytoplankton content of several water masses is high enough for the growth and fattening of oysters, but it may be necessary to eliminate the excess of sand and silt before the water can be used in an oyster culture project. Rearing of oyster larvae and artificial production of oyster spat is certainly possible, should natural reproduction fail in a man-made oyster area. The rearing procedure is, however, not yet foolproof; though ways to improve it have been found.

It has now been decided to construct an artificial oyster-rearing area to continue the experimental work and to develop new techniques of oyster cultivation. This project will be constructed behind the recently-completed enclosure dam north of the city of Veere, in stagnant but saline water, close to the open North Sea. It will consist of a large, rather shallow basin which can take up fresh supplies of sea water at high tide. After the sedimentation of excess sand and silt, this water will be led in wide channels to the area where the oysters are kept. Since current velocities will differ from section to section of the channels the best conditions for growth and fattening can be found after a few years of experimentation. Frequent analysis of the water in settling basin and rearing channels will make it possible to study the factors conducive to oyster culture.

The oystermen from Yerseke will be confronted with this work at frequent intervals, and their practical advice will be very welcome indeed. Thus science and the industry will try to find out together how to grow oysters in a man-made area. The experience gained over several years will be used to decide when such a new technique can be foolproof and profitable enough to warrant the investment required for oyster culture on a scale comparable with the present. (World Fishing, September 1961.)

Norway

FISHERMEN AND THE COMMON MARKET:

The Norwegian Government should not consider that Norwegian fishermen, as a matter of course, will agree to foreign fishermen generally being permitted to fish within Norwegian fishing limits, according to press reports of a statement made by the head of Norway's Fishery Association at the national meeting in Trondhjem on August 21, 1961.

Norway (Contd.):

He said that the fishermen must understand clearly what it will cost to join or not join the Common Market. (As reported by the Fisheries Attache, United States Embassy, Copenhagen, on August 25, 1961.)

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FISH MEAL INDUSTRY FACES CRISIS:

The crisis in Norway's fish meal and oil industry has now been reported on by a committee set up to deal with the matter. The crisis resulted from the combined effects of the failure, since 1957, of the traditional winter herring fishery and the drop in world market prices for meal and oil since 1959. The amount of winter herring bought by the reduction plants has dwindled from a maximum 911,400 metric tons in 1956 to a mere 7,440 tons this year, less than would normally be taken by the plants for just one day's operation at full capacity.

This development has completely changed the economic status of the Norwegian meal and oil industry. The fishermen have, of course, been seriously affected, but they can at least turn to other fishing with Government subsidies.

There are 76 meal and oil plants in Norway, with a daily handling capacity of 47,917 tons. The price crisis has affected all the plants, but the 53 in Western Norway (from Egersund to Kristiansund) which rely almost exclusively on the winter season for raw material have been extremely hard hit.

Since World War II, the Norwegian meal and oil industry has become of major importance, and has made use of more than 50 percent of the total Norwegian fishery catch. Herring provides the main source of supply, and since the war the reduction plants have taken 76 percent of all landed winter herring and 85 percent of all fat and small herring. From 1953 through 1957 Norway accounted for 16.9 percent of the world's production of fish meal. This shrunk to 8.3 percent in 1958, and 7.2 percent in 1959. The industry also provided a valuable export trade for the country; during 1953-57, the Norwegian share of the world export of fish meal averaged 35 percent. It fell to 17.3 percent in 1958 and to 11.6 percent in 1959.

The Nowegian Government is at present trying to build up the industry with marketing guarantees to the meal and oil manufacturing companies, and with price subsidies to the fishermen. This has led to increased fishing for North Sea fish (North Sea herring, sand eels, and Norway pout) by trawlers, and the establishment of industrial purse-seine fishing for Icelandic herring. This led to an increase in raw fish for the Western Norway plants at least.

In North Norway, the subsidies have encouraged fishermen to concentrate far more on the capelin and fat and small herring fishery. Over 186,000 tons of capelin were landed this past spring--double the landings for the same period of 1960. With these supplies together with those of fat and small herring which have poured into the bins of the plants since late autumn 1960, the North Norway plants have been able to operate continuously for between 8 and 9 months, with no time for even a checkup of the machinery. The fishermen feel that the present capacity of the North Norway plants is insufficient and slows down landing possibilities. They have thus put forward strong demands for the building of new plants, especially in Finnmark.

The committee's recommendations have not been too well received. The committee suggested that the capacity of plants should be cut by scrapping (or "organized condemnation") of machinery, while other plants should be "laid up" until the present position improves. (World Fishing, September 1961.)

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HERRING CATCHES IN AUGUST REPORTED GOOD IN LOFOTEN AREA:

For the first time in many years, waters off North Norway's Lofoten islands were teeming with fat herring. As of August 29, fishermen had landed about 90,000 hectoliters (8,370 metric tons) which had a first-hand value of about Kr. 2.7 million (US$378,000). Herring runs of similar size have occurred in Lofoten only four times before in this century. According to experts, the influx is likely to continue for many months.

On the herring fishing grounds off the west coast of Norway. Photo shows about 180 tons of herring concentrated in the bag section of a large purse seine which has been tied up to the fishing vessel. Fish are now ready for brailing on board the vessel.

Norwegian participation in the Iceland summer herring fishery produced very good results. During July and August, about 80-90 Norwegian fishing vessels brought home about 1,000,000 hectoliters (93,000 tons) of Iceland herring. This was processed into 20,000 tons of herring meal. The more than 1,200 vessels which took part in last winter's herring fishery off West Norway landed only about 60,000-70,000 hectoliters (5,580-6,510 tons)

Norway (Contd.):

at coastal processing plants. (News of Norway, September 7, 1961.)

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PRODUCTION OF MARINE OILS EXPECTED TO REMAIN LOW:

Winter herring fishing off Norway's west coast is nearing the end of a cycle that may be followed by a complete absence of the fish in the area during the next 10 or 20 years, according to Norwegian experts.

It is believed that the fish population tends to shift periodically to other areas, depending on ocean currents, water temperatures, and other factors.

The 1961 winter herring season ended largely in failure, with landings of only 74,000 short tons, the smallest in 50 years and much below the 1954-60 average of 800,000 tons.

This year's small herring catch has dealt a serious blow to fishermen and reduction plants, which produce fish oil and meal. For years, Norway's domestic edible oil requirements have been met largely by the winter herring catch. Also, exports of hardened marine oils have been produced largely from the herring catch.

Norway's declining domestic production of marine oils is attributable to smaller catches of winter herring and Antarctic whales. As a result, imports of fish oil have been increased in recent years to meet requirements for domestic edible oil and export commitments for hardened marine oil.

In 1960, Norway's import requirements for marine oil were largely met with 45,000 tons of raw herring oil from Iceland. This year, the United States may be the major supplier of marine oils to Norway. In the first half of 1961, fish oil exports from the United States to Norway totaled 15,640 tons, or double those of 1960. (Foreign Crops and Markets, U. S. Department of Agriculture, September 4, 1961.)

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REGULATIONS ISSUED FOR FISHING ZONE EXTENSION:

Regulations covering the extension of Norway's fishing limits zone from 6 to 12 nautical miles, effective September 1, 1961, have been announced by the Norwegian Government. The extension applies to waters west and north of Lindesnes. On April 1, 1961, the Norwegian fishing limits zone was extended from 4 to 6 nautical miles.

A newspaper report of a ministerial meeting in Oslo August 19, 1961, stated that in connection with the expansion of the Norwegian fishing limits to 12 nautical miles on September 1, it had been decided to permit Swedish, Danish, and Faroese fishing vessels to fish until further notice in the area beyond 6 nautical miles from land from the southern tip of Norway northward and westward.

The new Norwegian fishing limits, which became effective September 1, set the new boundary at 12 nautical miles from the coast from Cape Lindesnaes toward the west and north. There are no changes east of the Cape where the Danish fishermen will have the same rights they have always had, according to newspaper reports of August 23. West of Cape Lindesnaes, according to Danish-Norwegian agreements, Danish fishermen may fish up to 6 nautical miles from the coast, despite the new fishing limits. This fishery, however, is subject to Norwegian fishery legislation and jurisdiction.

In anticipation of the new fishing limits, the Norwegian Government reached a number of important decisions in this connection, according to newspaper reports on August 19. Norwegian fishing vessels may use trawls in the area between 6 and 12 miles from the coast. In certain areas and at certain times it is forbidden to fish with other gear than lines, hand lines, or nets within 4 nautical miles of the coast.

In accordance with the Norwegian-British agreement of November 17, 1960, British fishing vessels may fish in the 6- to 12-mile belt until October 31, 1970, under the same conditions as Norwegian fishing craft.

The Soviet Union has asked to negotiate with Norway in regard to the latter's 12-mile fishing limits which will become effective September 1, according to the Oslo correspondent of Copenhagen's Berlingske Tidende of August 13. No dates have been set for the negotiations, but the Foreign Ministry has presented certain questions to the Soviet Foreign Ministry in order to clarify the area of the negotiations. The correspondent con-

Norway (Contd.):

cludes the Russians will want the same rights as the British to fish up to the six-mile limit. Since the Russians, themselves, maintain a 12-mile boundary, it seems reasonable to believe that the Norwegian authorities will demand the same rights for Norwegian fishermen to fish within the 12-mile boundary as the Russians eventually obtain in Norwegian territory. To guard the 12-mile zone against violations, the Norwegian Navy will have six armed craft, with a complement of 132 men, at its disposal. These have been leased by the Navy, until new patrol vessels now under construction are ready for service. (August 25, 1961, report from the Fisheries Attache, United States Embassy, Copenhagen, and News of Norway, August 24, 1961.)

Pakistan

SHRIMP FISHERIES OF EAST PAKISTAN:

Due to the scattered nature of the shrimp industry in East Pakistan, it is rather difficult to give reasonably accurate statistics of production. In addition to the shrimp caught by commercial fishermen, a considerable quantity is caught and consumed by agriculturists and others.

Types of Shrimp: A total of 22 species of shrimp have been recorded from the East Pakistan waters. Bagda chingri (Penaeus semisulcatus) is the biggest salt-water type of East Pakistan, which sometimes attains a length well over a foot. It is abundantly available in Khulna Sundarbans. Chapda chingri (P. indicus), though smaller than bagda chingri in size, constitutes the biggest commercial catch of the province. Throughout the year, this species is caught and quantities are collected from the Sundarban area.

The most important fresh-water shrimp is Golda chingri or Mocha chingri (Pataemon carcmus). This species is very common in the lower reaches of the rivers, lakes, beels, paddy fields, and tanks. They grow up to one foot in length.

Honye chingri, (Metapenaeus monoceros), Ghusha chingri (Leander sp.), shul chingri (Pataemon birmanicus birmanicus) are the other important species of shrimp fished in East Pakistan waters.

Some species of shrimp are available throughout the year while others are caught during certain months only. Several species of Pataemon are collected in huge quantities from fresh-water fisheries after the monsoon when the water level falls. In Khulna Sundarbans and Bakarganj, where maximum quantities of shrimp are caught, fishing goes on through out the year.

Methods of Fishing: Various types of nets and traps are used for the capture of shrimp. Berjal, moijal (drag and seine nets), chantijal (trawl net), behuti or behundi jal (fixed purse net), Charpata jal (stake nets), vesal jal, Honcha jal (framed or dip nets), and kepla jal (cast net) are generally used. Behundi jal is extensively used in the estuarine areas and are very effective. More shrimp are caught by these nets than all other types of nets and traps taken together.

Honcha, dhak, hogra, kholson, etc. (various types of split bamboo traps) also are used for shrimp.

Culture: Shrimp are regularly cultured in bheries (salt-water fisheries) of Khulna and to some extent in the khals (channels) of Bakarganj and Chittagong.

The young shrimp enter the bheries along with other species of fish during the months of January to April. After growth and fattening, these are marketed from June onwards. No special cultural practices are followed for rearing shrimp in the bheries. Bagda chingri forms the most important species in such impoundments.

Occasionally villagers stock their ponds with young Golda chingri. Shrimp are of great economic importance. So the attention of the Directorate of Fisheries is directed to explore the possibilities of rearing commercially-important species of fresh-water shrimp in ponds. Research is being conducted in the laboratory of the Directorate to work out a method for successful culture of shrimp in ponds. Feeding habit, breeding habit, growth rate, etc. of different species are being studied and results so far obtained are promising.

Preservation: During the season a huge quantity of shrimp is caught, a considerable part of which, due to lack of transport and preservation facilities, cannot be marketed fresh. So a good percentage of the catch is either sun-dried, boiled and sun-dried, or smoked in the crudest possible method.

Pakistan (Contd.):

In sun-drying, the shrimp are simply spread out in mats, in bamboo trays, or on raised split bamboo platforms. After hard drying these are removed and shelled by beating. The finished product is stored in gunny bags while the shells are sold as fertilizer.

In a second method, the shrimp are boiled for a few minutes in fresh water containing a small quantity of common salt. As soon as the shells become soft, the water is drained out and the shrimp are spread out for sun-drying.

Shrimp are smoked by placing them on raised platforms, and then applying hardwood smoke from below. No wood containing much resin and oils is used for the purpose. An improved method of shrimp curing devised at the Fisheries Experimental Station, Tanur (Madras), can be adopted in East Pakistan with advantage. This method consists of boiling fresh shrimp in 6 percent brine for 2 minutes. As soon as the shrimp begin to float, they are removed, shelled, and placed in vats containing a saturated salt solution for 15-30 minutes. After brining, the shrimp are gently squeezed and spread on trays and either dried in the sun or in an artificial drier during inclement weather. The resulting product keeps for days. This product can be easily transported to distant places packed in butter paper and small bamboo baskets. The "semi-dried prawns"--as the product is known--are freshened by soaking them in warm water for a few minutes.

The semidried shrimp can be kept 8-12 months in sealed tins containing carbon dioxide gas. Plants can be established in important shrimp-catching areas for the preparation of semidried shrimp.

In Tanur Fisheries Station (Madras), a process for shelling shrimp has been evolved. This process consists of boiling fresh shrimp in 5 percent brine, shelling them, washing the meat in 10 percent brine, and packing the product in airtight glass jars.

Quick-frozen fresh shrimp are in demand in foreign countries, particularly in the United States. A plant has been established at Bajua (Khulna) for freezing shrimp for export to the United States. (Pakistan Observer Sunday Supplement, August 6, 1961.)

Note: Also see Commercial Fisheries Review, March 1961 p. 77.

Poland

FISHING FLEET AND LANDINGS UP SHARPLY BETWEEN 1949 AND 1960:

Poland's fleet of sea fishing vessels of only 302 craft (made up mostly of small inshore boats) had by 1960 grown to 657 vessels. The gross registered tonnage of the fleet in the same period increased from 15,200 to 71,400 tons. During the period, the fleet of cutters almost doubled and the fleet of supertrawlers increased from zero to 53 vessels. In 1960 the fleet of supertrawlers included one factory trawler of 2,600 tons (GRT).

Table 1 - Poland's Fleet of Fishing Vessels, 1949, 1955, and 1959-60

Type of Vessel	1960	1959	1955	1949
	(Number of Vessels)			
Super trawlers	1/54	39	8	-
Trawlers	13	15	20	20
Luggers and trawlers	50	50	34	-
Luggers	3	3	3	3
Cutters	537	502	397	279
Total	1/657	609	462	302
Total Gross Register Tons	1/71,400	58,100	34,300	15,200

1/Includes one factory trawler of 2,600 gross registered tons.

Table 2 - Poland's Marine Landings of Fishery Products, 1949, 1955, and 1959-60

Fishery	1960	1959	1955	1949
	(Metric Tons)			
Groundfish	51,000	36,700	40,300	36,900
Herring	93,500	84,700	52,000	12,000
Sprats	10,000	15,300	5,100	1,100
Other	13,200	9,300	9,700	9,300
Total	167,700	146,000	107,100	59,300

The sharp increase in the fishing fleet increased marine landings by 182.8 percent, from 59,300 metric tons in 1949 to 167,700 tons in 1960. The landings of herring, which apparently are the chief objective of the supertrawlers, rose almost sevenfold between 1949 and 1960. (Concise Statistical Yearbook of the Polish People's Republic, 1961.)

Sierra Leone

FISHING INDUSTRY CONTINUES TO GROW:

The development of Sierra Leone's inshore fishing industry has made some good progress in the past 15 years although the supply of locally-caught fish has not kept pace with demand, which has increased greatly with rising living standards (imports of fish products were valued at about US$1,042,000 in 1960). About 25,000 metric tons of fish (primarily bonga and mullet, but including also skate, shark, ladyfish, whiting, gwangwa, sheephead, crocus, snapper, catfish, and sole) were landed in 1960, a marked increase over the estimated landings of about 5,000 tons in 1945. The bulk of the catch was brought in by unpowered bonga canoes, 3,000-3,500 of which now operate in Sierra Leone waters as compared with only 300 in the immediate postwar period. Techniques are largely primitive, with cast nets from the canoes and also some beach seines and hand lines in use.

A small portion of the catch (estimated at 2,000 and 3,000 tons) was landed by about 10 African and European-owned motor trawlers which have been operating off the coast in recent years. Inshore fishing is protected by a law prohibiting these larger vessels from operating in the estuaries or within one mile of the coast. Outside this area the trawling grounds are restricted to inshore waters rarely deeper than 20 fathoms due to the existence of a permanent thermocline at this depth below which there is a sudden drop in the catch. While the trawling grounds are probably not yet fully exploited, there is a danger that the increased introduction of powered vessels might result in overfishing. This situation is aggravated by the fishing of large numbers of foreigners, particularly Fantis from Ghana, off the Sierra Leone coast.

The indigenous fishing industry is largely controlled by local traders (almost invariably women) who provide the capital needed for the purchase of fishing gear and are repaid in kind from the catches which they market. Most fish are sold fresh, the demand in the coastal areas generally being sufficient to absorb quickly the available supplies. Occasionally when supplies exceed demand (at relatively high prices), bonga and mullet are preserved by smoking and drying and subsequently sold locally or inland. The amount of marine fish reaching the interior in this manner, however, is probably quite limited. While there are no records of landings, inland rivers and lakes are fished and likely yield a useful seasonal catch, although this source also falls considerably short of the needs of the interior peoples.

The Government is attempting to foster the growth of inshore fishing by encouraging the increased use of modern techniques and improvements in credit and marketing facilities. The Fisheries Development Research Unit, in addition to its scientific activities, operates a loan scheme to enable local fishermen to purchase small trawlers and modern gear. Fishing cooperatives are being encouraged and there are now seven such societies. The Government is also considering various other measures to assist the fishing industry, including establishment of a vessel-building yard, construction of low-cost jetties, establishment of an outboard motor repair shop, and the improvement of cold-storage and ice-making facilities.

It is in offshore fishing that the greatest possibilities for growth would appear to lie. In recent years tuna schools have been found 70-80 miles off the Sierra Leone coast and Freetown is now the second largest tuna receiving port in West Africa. Recently a significant expansion of the tuna industry has occurred, mainly through the efforts of a United States fish canning company working in conjunction with a locally-operated cold-storage warehouse. In 1960, 2,340 tons of tuna were landed, while in the first five months of 1961 landings totaled 2,768 tons. None of the catch is as yet marketed locally, but it is held in cold storage and later shipped to Puerto Rico for canning. Expansion of cold-storage facilities is under way and construction of a canning factory is a future possibility. (United States Embassy, Freetown, August 14, 1961.)

Somali Republic

FISHERY TRENDS, AUGUST 1961:

The fish resources of the Gulf of Aden (that borders on part of Somali) are believed to be considerable and the primary exploitation to date has not been in the regions of the northern area. But in the adjoining Migiurtina region at Candala there is an Italian tuna-canning plant which has been in operation for many years.

Somali Republic (Contd.):

Italian financial circles have recently displayed an interest in initiating larger-scale investment in the fishing industry which contemplates buying up large quantities of tuna and shark on the northern Somali coast, and shipping them out of the port of Berbera for canning and processing into bone meal in Italy. The plan envisages furnishing local fishermen with long lines and other equipment. (United States Embassy in Mogadiscio, August 29, 1961.)

South Africa Republic

CANNED ABALONE PRODUCTION, JANUARY-JUNE 1961:

In the first six months of 1961, four South African firms produced a total of 249,723 pounds of canned abalone. The pack consisted of 12,191 pounds in cases of 48 1-lb. cans, 179,932 pounds in cases of 48 14-oz. cans, and 57,600 pounds in cases of 48 ½-lb. cans.

According to the South Africa Republic's Division of Fisheries, no abalone are canned in South-West Africa. (United States Consulate in Cape Town, August 24, 1961.)

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PILCHARD-MAASBANKER FISHERY INDUSTRY, JANUARY-MAY 1961:

The Union of South Africa Cape west coast pelagic shoal fishery catch for the first five months of the 1961 season consisted of pilchards 343,815 short tons, maasbanker 29,911 tons, and mackerel 45,716 tons. The total catch was 419,422 tons. In 1960 the catch for the same period was pilchards 211,525 tons, maasbanker 43,143 tons, and mackerel 28,273 tons; a grand total of 282,941 tons. In 1959 the total catch for the first five months was 197,125 tons.

The May catch was pilchards 60,205 tons, maasbanker 14,362 tons; and mackerel 1,986 tons; a grand total of 76,553 tons. In May 1960 the catch was pilchards 46,396 tons, maasbanker 2,422 tons, and mackerel 341 tons; a grand total of 49,159 tons.

The May catch this year yielded: fish meal 17,601 tons, fish body oil 1,499,880 Imperial gallons, canned pilchards 709,824 pounds, canned maasbanker 2,759,568 pounds, and canned mackerel 493,680 pounds.

South Africa Republic--Products Produced from Pilchard-Maasbanker Fishery Landings, January-May 1961

Fish Meal	Fish Oil	Canned		
		Pilchards	Maasbanker	Mackerel
Short Tons	1,000 Imp. Gals.	(1,000 Lbs.)		
88,861	7,999	17,299	6,756	13,766

During May 1961 the Walvis Bay shoal fishing industry of South-West Africa caught: pilchards 70,946 tons, and maasbanker 14 tons. The total Walvis Bay catch to the end of May was: pilchards 127,970 tons, and maasbanker 14 tons. (From The South African Shipping News and Fishing Industry Review, July 1961.)

Sweden

FISHERIES ASSOCIATIONS DISCUSS HERRING LANDINGS IN WEST GERMANY:

Representatives of the West German trawling and canning industries met in Goteborg, Sweden, to discuss the Swedish direct landings of herring in West Germany with representatives of West Coast Fishermen's Central Association, the West Coast Fishermen's Fish Processing, and West Coast Fish. The meeting in September 1961 was arranged inasmuch as the West German trawler companies insisted that Swedish fishermen either limit their direct landings of herring in West German ports or, if this was not possible, stop the landings.

As a result of the negotiations a minimum price of DM 16 (US$4.00) per box was set for herring landed in West German ports. For herring which cannot be sold at a price of DM 16 per box, and which will be taken over by the reduction plants, the Central Association guaranteed Swedish fishermen a price of at least DM 10 ($2.50) per box.

The agreement was effective immediately and is valid through the end of 1961, at which time it will be subject to renegotiation.

The Central Association also decided to limit the Swedish fishermen's landings of herring in West German ports from 140 boxes per fisherman each week to 120 boxes per man each week. This restriction is valid until further notice. (United States Consulate, Goteborg, September 18, 1961.)

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Sweden (Contd.):

NEW STEEL TRAWLERS BUILT IN EAST GERMANY DELIVERED:

The first two steel trawlers in the series on order from an East German shipyard have been delivered to two owners on the Swedish west coast.

The trawlers have a length of 105 feet, a beam of 22 feet, and are equipped with 560 hp. Diesel engines giving the trawlers a speed of 10 knots. The loading capacity is 1,500 boxes. The trawlers are equipped with echo-sounding devices and radiotelephone. The cost of each vessel was about 600,000 crowns (about US$115,800).

A representative of the Swedish firm that imported the steel trawlers, stated that the first series on order with the East German shipyard numbers 11 trawlers. A second series of 4 trawlers has also been placed with the same yard. The latter trawlers will be equipped with a more powerful engine of Swedish manufacture. (United States Consulate, Goteborg, September 18, 1961.)

Thailand

INDUSTRIAL INVESTMENT PROMOTION ACT INCLUDES FISHERIES AND RELATED INDUSTRIES:

The Industrial Investment Promotion Act of Thailand, designed as a revision of previous laws, decrees, and announcements relating to the promotion of industrial investment (including private foreign investment), came into force on October 25, 1960, when published in the Government Gazette. Fisheries and related industries are included.

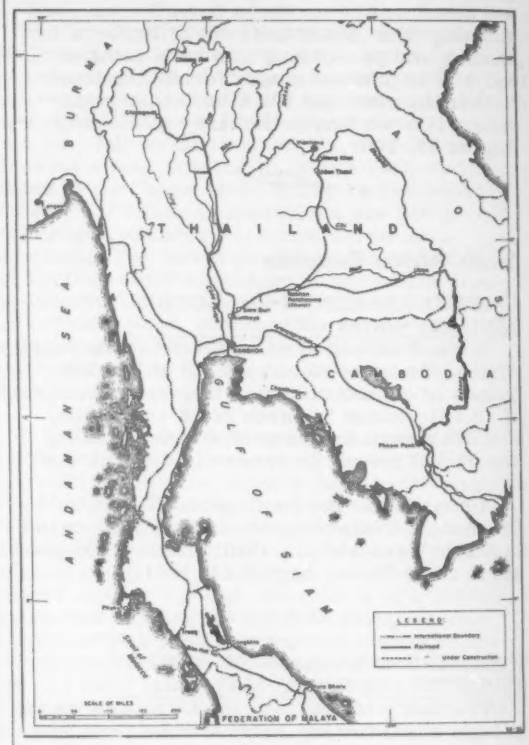
Supplanting the International Promotion Act of 1954 and various subsequent announcements, the act is significant in the following two respects.

(1) The number of industries eligible for benefits has been substantially increased.

(2) Thailand's industrial promotion inducements are now no longer based on mere "announcements" but on actual legislation; hence, investor confidence is expected to grow.

Among industries eligible for rights and benefits under the act are:

Fishing net or seine production (minimum annual capacity, 30,000 kilograms or about 66,000 pounds).



Food canning, including food packaging in other airtight containers (local raw materials must be mainly used. Minimum annual capacity, 500 metric tons of quality canned or otherwise airtight-packaged food).

Pearl oyster breeding (process must include all phases up to and including the pearl and pearl-by-product yielding stage. Minimum investment is $100,000).

Deep-sea fishing (minimum capacity, plant(s) ashore to process the catch of craft of at least 30 gross tons, operating in waters of a depth of at least 30 meters or about 16 fathoms. Applications to cover both shore and offshore operations as a package project).

Turkey

CONFERENCE ON FISHERIES:

A conference on the Turkish Fishing Industry arranged jointly by the Turkish Ministry of Commerce and the State Hydraulics Department was held in Ankara, August 9-12, 1961. The Minister of Commerce, who gave the opening speech, after a short history of the fishing industry in Turkey, emphasized the importance of the industry to the Turkish economy and added that the Turkish Government has decided to extend credits without interest to persons engaged in the fishing business. The Government has also decided, according to the Minister, to reduce the cost of fishing gear sold in Turkey. Another official at the Conference confirmed those statements and added that the Fisheries Administration must be better organized.

A report previously prepared by the Ministry of Commerce on the Fishing Industry in Turkey was discussed and members of the industry voiced their needs and wishes. Subjects under discussion included: (1) necessary measures for the development of the fishing industry; (2) production and storage of fish; and (3) marketing problems. A decision was taken to prepare a report on the Turkish Fishing Industry for submission to the State Planning Agency.

Fisheries received attention in the recently published seventeen-point statement on Agricultural Policy made by the Republican People's Party. It was recommended that fish production be better organized and domestic production be increased. (United States Embassy, Ankara, September 1, 1961.)

United Kingdom

FISHERY LOANS INTEREST RATES REVISED:

The British White Fish Authority in August 1961 announced that their rates of interest on advances made as from August 5, are as follows:

Fishing vessels of not more than 140 feet, new engines, nets, and gear:

On loans for not more than 5 years--$7\frac{1}{8}$ percent; increase 1 percent.

On loans for more than 5 years but not more than 10 years--7 percent; increase $\frac{5}{8}$ percent.

On loans for more than 10 years but not more than 15 years--$7\frac{1}{8}$ percent; increase $\frac{1}{4}$ percent.

On loans for more than 15 years but not more than 20 years--$7\frac{1}{4}$ percent; increase $\frac{3}{8}$ percent.

Processing plants:

On loans for not more than 15 years--$8\frac{1}{4}$ percent; increase $1\frac{1}{8}$ percent.

On loans for more than 15 years but not more than 20 years--$7\frac{3}{4}$ percent; increase $\frac{1}{2}$ percent.

The rates on advances made before August 5 are unchanged. (Fish Trades Gazette, August 19, 1961.)

Note: Also see Commercial Fisheries Review, September 1961 p. 106; January 1961 p. 84.

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TRAWLERS EXPERIMENT WITH TRANSFER OF CATCHES AT SEA TO CARRIER VESSEL:

A five-trawler express fishing venture--aimed at getting fresh fish back to port more quickly--was launched from Grimsby, England, on August 22, 1961, on a purely experimental basis. The skippers of five distant-water trawlers owned by a large British fishing company (and part of an associated fisheries group at Grimsby) sailed with the single operation order: "Fill the first one and get her back from sea."

The "fresher fish" fleet was composed of four catchers and one carrier, and the catchers had slight modifications to enable them to transfer their catches to the carrier.

The carrier in the operation was the Northern Sky. The four trawlers were: Northern Foam, Northern Prince, Isernia, and Serron.

The purpose of the experiment was to transfer the first part of the catches by the trawlers to the Northern Sky so that a larger quantity of first-class fish can be sent back to port immediately. The remaining four vessels resumed trawling in the normal way to

United Kingdom (Contd.):

fill their holds and returned to port later to keep the supply pipeline full. The Northern Sky is estimated to be able to carry about 560,000 pounds of fish.

A spokesman for the company owning the trawlers said: "We are carrying out this experiment to see if it is feasible to transfer fish at sea. If we prove that it is technically possible, it will have a great significance for the factory-type of vessel."

The experiment by five British trawlers in transferring catches at sea has been considered a success. The trawler Northern Sky, which served as a carrier for four other trawlers, returned to Grimsby, England, on September 4, 1961.

After the four trawlers had made a catch, the fish were gutted and transferred to the Northern Sky, the carrier, which immediately started for home. Fishing took place off Iceland.

The Northern Sky was back in port after 14 days, thus clipping five days off the usual trip since the shortest voyage from Iceland of any vessel arriving at Grimsby that day was 19 days.

The catch was also better than average, being a big combined one of excellent quality--419,860 pounds which sold for £9,326 (US$26,112). The other four trawlers continued operations in the normal way after the Northern Sky left.

During the first five days of actual fishing, trawlers transferred their catches in winds of up to 40 miles per hour, and at one stage the transfer was done in dense fog, an operation that took 12 hours.

The fish was actually transferred in a manner similar to a ship refueling at sea. The catcher and the carrier steered on parallel courses and the catch was transferred by passing a line shackled into the closed cod-end net from the catcher to the carrier, which then winched it aboard. The fish was transferred to the carrier as soon as it was gutted.

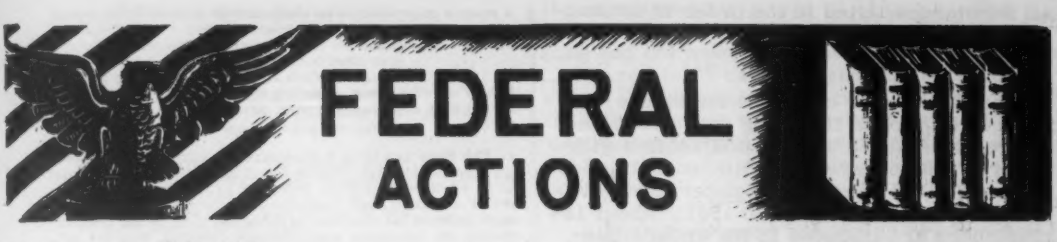
Despite the adverse weather encountered, the managing director of the trawling firm said:

"The quality of the fish is excellent, and we feel we have learned a tremendous amount about transferring fish at sea. From this point of view it has been a very successful experiment indeed. Had it not been for the particularly slack fishing at the grounds, we do not think there would have been any difficulties in transferring a bigger catch. We now know that it is a feasible proposition to do so."

Stating that no further trips were planned in the immediate future, he went on: "We shall wait and see how we assess the commercial possibilities of the venture."

This is one of two major experiments by an associated group of British fishing firms, involving £1 million (US$2.8 million) worth of trawlers, to get fresher fish to the housewife.

The other was the building of the part-refrigerated trawler Lord Nelson, twice the size of any other trawler, which landed at Grimsby the week of August 29 after her maiden voyage with a 612,360-pound catch, over half of which had been fresh-frozen at sea. (The Fishing News, August 25 and September 8, 1961.)



Department of Health, Education, and Welfare

FOOD AND DRUG ADMINISTRATION

DEFOAMING AGENTS APPROVED AS SAFE IN PAPER AND PAPERBOARD USED TO PACK FOODS:

Defoaming agents may be safely used in the manufacture of paper and paperboard intended for use in packaging, transporting, or holding food under certain prescribed conditions. The Commissioner of Food and Drugs, having evaluated the data submitted in petitions filed by several companies, and other relevant material, has issued an order approving the use of certain defoaming agents. Under the prescribed conditions of safe usage, substances approved are not expected to become components of food in any significant amount. The order issued in the August 30, 1961, Federal Register and effective on that date, lists about 125 substances. Included are fatty triglycerides and the fatty acids, alcohols, and dimers derived from them, and included are such substances as beef tallow, corn oil, fish oil, sperm oil, and other types of oil. Another group approved is the fatty triglycerides, rosin oils, and marine oils, and the fatty acids and alcohols derived from them and reacted with one or more of the substances listed under this group, with or without dehydration, to form chemicals of the category indicated in the list. Some of the chemicals listed in this group are soaps, esters, amides, air-blown oils, etc.

The list of substances approved is in the regulations as "Part 121--Food Additives, Subpart F, section 121.2519."

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EFFECTIVE DATE OF FOOD ADDITIVES STATUTE FOR CERTAIN SUBSTANCES USED INDIRECTLY IN FOODS EXTENDED:

The use in foods of certain substances as indirect additives has been further extended under the Federal Food, Drug, and Cosmetic Act as amended. The order issued by the U. S. Food and Drug Administration was published in the August 31, 1961, Federal Register, and became effective on August 22, 1961.

About 146 substances used as components of coatings of paper and paperboard for food packaging are included in the order, including such substances as aluminum stearate, animal glue, boric acid, borax, hydrogenated fish oil, tallow, tall oil, etc. The extension of effective date for all substances listed in the order is to July 1, 1962.

The list of substances is in the regulations as "Part 121--Food Additives, Subpart A, section 121.91."

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EXTENSION OF EFFECTIVE DATE OF FOOD ADDITIVES STATUTE FOR CERTAIN SUBSTANCES USED DIRECTLY IN FOODS:

Three new orders further extend the use in foods of certain substances as direct additives under the Federal Food, Drug, and Cosmetic Act as amended. One order issued by the U. S. Food and Drug Administration was published in the September 6, 1961, Federal Register, and became effective on August 28, 1961. Used under the conditions prescribed in the order, the 23 substances listed may be used as direct additives in food until July 1, 1962, for some and until July 1, 1963, for others. Among the substances listed are certain fatty acids, boron, fluorine, sorbitol, starch modified with propylene oxide, etc.

A second order involves the direct use in foods of certain substances as flavoring substances and adjuncts in accordance with good manufacturing practice. The order was published in the September 6, 1961, Federal Register, and became effective on August 28, 1961. About 470 substances are listed in the order, including such substances as styrene, styrolyl, alcohol, nerol, linalyl propionate ethyl lactate, etc. The extension of effective date for

all substances listed in the order is to January 1, 1963, and in some cases to June 30, 1964.

The third order concerns the direct use in foods of certain flavoring substances and natural substances used in conjunction with flavors. The order was published in the September 8, 1961, Federal Register, and became effective on August 30 1961. About 164 substances are included in the order. Specific uses or restrictions are shown for a few of the substances listed, which include Iceland moss, rosin, saffron, etc. Extension of effective date is to January 1, 1963, because tolerances have not been established or petitions therefor denied for the substances listed.

The list of substances in all three orders are included in the regulations as "Part 121--Food Additives, Subpart A, section 121.90."

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STANDARD OF IDENTITY FOR FISH FLOUR PROPOSED:

Establishment of a proposed definition and standard of identity for fish protein concentrate or whole fish flour was announced by the U. S. Food and Drug Administration in the Federal Register of September 15, 1961.

The announcement stated that a manufacturer had visited the Agency to discuss a process he has developed for manufacturing a fish flour product which could be used as a source of protein to be marketed at a price "that would be most attractive when compared with the cost of other sources of protein."

The "whole fish flour" is to be made by taking whole fish of varying sizes, grinding them, and after removing the fat by a chemical process, drying the flour so produced.

The Food and Drug Administration informally expressed the opinion that this "whole fish flour" should be regarded as an adulterated article under the provisions of the Federal Food, Drug, and Cosmetic Act, because it was to be made without the removal of those portions of the fish, including the intestines and intestinal contents, that are not normally regarded as acceptable for human food in the United States. Proponents of the product, however, stated that they did not agree with this view and represented that if consumers generally were fully informed of the nature of the article they would regard it as suitable for use in their food supply.

The proposed standard includes the following specifications:

1. Protein content measured by methods of the Association of Official Agricultural Chemists, shall not be less than 70 percent by weight of the final product and biological values of the finished fish protein concentrate.

2. Moisture and ash contents shall not exceed 6 percent and 25 percent by weight of the final product.

3. Fat content shall not exceed one percent.

4. The final product should have no more than a faint fish odor and taste and when baked in bread in the ratio of one part of fish protein concentrate to 11 parts of grain flour, there should be no detectable fish odor or taste.

5. The fish protein concentrate, after six months storage at temperatures prevailing in areas of intended use but not exceeding 100 degrees F. and when packed in metal containers or in polyethylene bags, should show no spoilage as judged by the development of off-flavors, mold growth, production of toxic amines, or by deterioration in protein quality as shown by digestibility and available lysine values below the specific minima.

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE

Food and Drug Administration

[21 CFR Part 37]

FISH PROTEIN CONCENTRATE, WHOLE FISH FLOUR

Notice To Establish Definition and Standard of Identity

A manufacturer approached the Food and Drug Administration to discuss a process that he has developed for manufacturing a fish flour product which could be used as a source of protein to be marketed at a price that would be most attractive when compared with the cost of other sources of protein. The article was referred to as "whole fish flour" and was to be made by taking whole fish of varying sizes, grinding them, and, after removing the fat by a chemical process, drying the flour so produced. In some cases the flour was to be deodorized by a further process.

The Food and Drug Administration informally expressed the opinion that this "whole fish flour" should be regarded as an adulterated article under the provisions of the Federal Food, Drug, and Cosmetic Act, because it was to be made without the removal of those portions of the fish, including the intestines and intestinal contents, that are not normally regarded as acceptable for human food in the United States. Proponents of the product, however, stated that they did not agree with this view and represented that if consumers generally were fully informed of the nature of the article they would regard it as suitable for use in their food supply.

The Commissioner of Food and Drugs has received from Mr. Harold Putnam of Washington, D.C., acting on behalf of the manufacturer of this article, and others, a petition for the establishment of a standard of identity for "whole fish flour." The Commissioner has concluded that this proposal should be published in order to afford all persons interested in this article an opportunity to comment thereon.

The proposal submitted is as follows:

§ 37.5 Fish protein concentrate, whole fish flour; definition and standard of identity.

(a) *Definition.* Fish protein concentrate, whole fish flour, is a food supplement consisting primarily of a dried and processed fish protein and of the naturally associated vitamins and inorganic minerals. It is derived from any species of whole and wholesome fish, handled from catch to packaging in a sanitary manner.

(b) *Standard of identity*—(1) *Protein content.* Protein content (N X 6.25), measured by methods of the Association of Official Agricultural Chemists, shall not be less than 70 percent by weight of the final product (Official Methods of Analysis, A.O.A.C., 9th Ed., secs. 22.011, 22.023, 22.024; ch. 22, p. 285). Biological values of the finished fish protein concentrate shall not be less than 105 percent as measured by the official A.O.A.C. method for the biological evaluation of protein quality (secs. 39.133–39.137, inclusive, ch. 39, p. 680).

(2) *Moisture and ash content.* Moisture and ash contents shall not exceed 6 percent and 25 percent, respectively, by weight of the final product, measured by A.O.A.C. standards (secs. 22.003, 22.010, ch. 22, p. 283, 284).

(3) *Fat content.* Fat content shall not exceed 1 percent (sec. 18.011–18.012, inclusive, ch. 18, p. 235, or sec. 22.037, ch. 22, p. 287).

(4) *Odor and taste.* The final product should have no more than a faint fish odor and taste, and when baked in bread in the ratio of 1 part of fish protein concentrate to 11 parts of grain flour, there should be no detectable fish odor or taste.

(5) *Storage stability.* Fish protein concentrate, after 6 months' storage at temperatures prevailing in areas of intended use (but not exceeding 100° F.

(38° C.)), and when packed in metal containers or in polyethylene bags, should show no spoilage as judged by the development of off-flavors, mold growth, production of toxic amines (mistamine, tyramine), or by deterioration in protein quality as shown by digestibility and available lysine values below the specific minima.

(6) *Bacteriology.* The product should be free of Escherichia coli, Salmonella, and pathogenic anaerobes, and have a total bacterial plate count of not more than 2,000 per gram.

(7) *Safety.* The finished product should contain no additives, preservatives, or harmful solvent residues.

Pursuant to the provisions of the Federal Food, Drug, and Cosmetic Act (secs. 401, 701, 52 Stat. 1046, 1055, as amended 70 Stat. 919, 72 Stat. 948; 21 U.S.C. 341, 371) and in accordance with the authority delegated to the Commissioner of Food and Drugs by the Secretary of Health, Education, and Welfare (25 F.R. 8625), all interested persons are invited to submit their views in writing regarding the proposal published herein. Such views and comments should be submitted in quintuplicates, addressed to the Hearing Clerk, Department of Health, Education, and Welfare, Room 5440, 330 Independence Avenue SW., Washington 25, D.C., prior to the sixtieth day following the date of publication of this notice in the FEDERAL REGISTER.

Dated: September 7, 1961.

[SEAL] GEO. P. LARRICK,
Commissioner of Food and Drugs.

Department of Labor

WAGE AND HOUR AND PUBLIC CONTRACTS DIVISIONS

MINIMUM WAGE ORDER FOR AMERICAN SAMOA AFFECTS FISH CANNING INDUSTRY:

Higher minimum wage rates under the Fair Labor Standards Act have been set for industries (including the fish canning and processing industry) in American Samoa and became effective September 14, 1961. The new rates were announced in a wage order issued by the Administrator of the U. S. Labor Department's Wage and Hour and Public Contracts Divisions. The order was published in the August 30, 1961, Federal Register.

In the fish canning and processing industry and the petroleum marketing industry, a minimum wage of 90 cents an hour replaces the previous hourly rate of 75 cents. The minimum rate for Classification B of the shipping and transportation industry has also been increased to 90 cents, replacing the 75-cent rate. Classification A of that industry, which includes seamen newly covered by the Fair Labor Standards Amendments of 1961, is subject to a minimum wage of 50 cents an hour.

All other covered industries are grouped under miscellaneous industries, where a minimum wage of 70 cents an hour applies. Previous hourly rate for those industries was 55 cents. The 70-cent rate also applies to any workers newly covered by the amendments, except seamen.

The new rates are based on the recommendations of Industry Committee No. 4 for American Samoa, which earlier this year met in Pago Pago. Such committees are authorized by the Fair Labor Standards Act to recommend minimum wage rates for American Samoa at or below the statutory minimum which applies on the mainland. Composed of residents of American Samoa and the mainland, the committees are equally representative of employers, employees, and the public.

The fish canning and processing industry in American Samoa is defined as including the canning, freezing, preserving or other processing of any kind of fish, shellfish, or other aquatic forms of animal life and the manufacture of any byproduct thereof.

Eighty-Seventh Congress

(First Session)

CONGRESS ADJOURNS:

After the longest session in ten years, the first session of the 87th Congress adjourned in the early morning of September 27, 1961. The second session of this Congress will convene on January 10, 1962, unless the President calls a special session in the meantime. All pending legislation before either the

Senate or House will retain its status as of adjournment and will be subject to further consideration in the second session. Bills introduced in the first session do not have to be reintroduced. Bills that were reported out of a committee or passed by one body of the Congress remain in status quo and do not have to again retrace their legislative steps.

FISHING VESSEL DISASTER LOANS: H. R. 9375 (Kilgore), introduced in House on September 22, a bill to provide disaster loans to fishing vessel owners and operators adversely affected by failure of the fishery resource, and for other purposes; to the Committee on Merchant Marine and Fisheries. It is proposed that initial operating funds of $30,000,000, maximum, be transferred to the Secretary of the Interior by the Secretary of Agriculture from the revolving fund created by section 84 of the Farm Credit Act of 1933, as amended (12 U. S. C. 1148a). The money would be used to set up a separate revolving fund to carry out the loan provisions proposed in the bill. Fishing vessel owners or operators would be able to make loans at a maximum interest rate of 3 percent from the fund if the following conditions exist: If as a result of production failure or resource disaster temporary financial difficulty exists; credit is not available on reasonable terms from commercial banks, co-op lending agencies, or other sources; an adequate record of production for three successive years can be demonstrated; satisfactory evidence can be provided that repayment can be reasonably assured.

IMPORT COMPETITION ADJUSTMENT: H. R. 9292 (Bow), introduced in House September 19, a bill to regulate the foreign trade of the United States by providing safeguards to domestic industry against unfair and destructive imports and to authorize reciprocal trade agreements between the United States and foreign countries; to the Committee on Ways and Means.

The Subcommittee on the Impact of Imports and Exports on American Labor, of the House Committee on Education and Labor scheduled hearings on Fisheries Imports--Seattle, Wash., on November 29, and Portland, Oreg., on November 30.

INSPECTION FOR FISHERY PRODUCTS: H. Rept. 1241, Consumer Protection Activities of Federal Departments and Agencies (Eighth Report by the Committee on Government Operations, 87th Congress, 1st Session), 346 pp., printed. This report is the first of a series. It is intended primarily to give basic information concerning Federal activities which directly protect consumer interests. Report consists of information provided by the Federal agencies concerned, together with a staff analysis of data provided. While the primary activities of the Department of Interior are not directed to consumer protection, there are three fields of activity in the Department which affect consumer interest directly, one of which is the voluntary inspection of fishery products. The Bureau of Commercial Fisheries has operated the USDI voluntary inspection service for fishery products for the past 3 years, and has developed and promulgated U.S. standards for grades of 10 fishery products. This program offers three distinct services: (a) continuous inspection, (b) lot inspection, and (c) unofficial sample inspection. The report discusses these three services in more detail, giving statutory authority; number of employees; annual expenditures; adequacy of resources; consumer education; legal or administrative provisions; and services in connection with fish processing.

INTERNATIONAL FISHERIES ORGANIZATIONS: H. Doc. 222, United States Contributions to International Organizations (Letter from the Acting Secretary of State, dated August 10, transmitting the Ninth Report on the Extent and Disposition of U. S. Contributions to International Organizations for the Fiscal Year 1960, pursuant to section 2 of Public Law 806, 81st Congress), 128 pp., printed. Each year the Secretary of State reports on the extent and disposition of financial contributions by the United States to International Organizations of which it is a member. This is the ninth such report to Congress, and covers United States contributions for the fiscal year 1960. Only multi-lateral organizations and programs are included. Bilateral commissions have been excluded. This document gives a brief outline of the history of each such commission: secretary or director; term of office; origin and development; initial date of United States participation; current authority for United States participation; purpose of organization; United States contribution; and the governing body. Among the various organizations mentioned are the Inter-American Tropical Tuna Commission; International Commission for the Northwest Atlantic Fisheries; International Whaling Commission; and the North Pacific Fur Seal Commission.

LABOR, HEALTH, EDUCATION, AND WELFARE APPROPRIATIONS, FY 1962: On September 26, H. R. 7035, fiscal 1962 appropriations for Departments of Labor and Health, Education, and Welfare, was approved and signed by the President (P. L. 87-290). (Public Health Service appropriations, under "Milk, Food, Interstate, and Community Sanitation," contain funds for research grants for shellfish technology and marine ecology; shellfish sanitation; and $1,820,000 for construction, equipping, staffing, and operating two shellfish laboratories, one on the East Coast and one on the Gulf Coast, to combat the danger of transmission of disease, such as hepatitis, from raw shellfish to humans. Also includes funds for Federal Water Pollution Control Program.

NUTRITION OFFICE: H. R. 9440 (King, Utah), introduced into House September 25, a bill to establish an Office of Nutrition in the Department of Health, Education, and Welfare, and for other purposes; to the Committee on Interstate and Foreign Commerce. The Office of Nutrition would be headed by a Commissioner who would be a recognized authority in the field of biologic chemistry, competent to direct research and application of the products of research in the field of human nutrition. He would conduct and encourage, cooperate with, and render assistance to other appropriate public authorities, scientific institutions, and scientists in the conduct of, research, investigations, experiments, demonstrations, and studies in the field of human nutrition. An annual report of activities would be submitted to the President and Congress.

OCEANOGRAPHIC RESEARCH PROGRAM: On September 15, the Committee on Conference submitted conference report and statement on H. R. 6845 (H. Rept. 1194). The bill passed the Senate, amended on June 12. Senate amendment struck out all of the House bill after the enacting clause and inserted S. 1189 as substitute. House asked for conference June 29. In conference the House receded from its disagreement to the amendment

of the Senate with an amendment which is a substitute for both the House bill and Senate amendment. The conference substitute would require the Coast Guard to conduct such oceanographic research, to use such equipment and instruments, and to collect and analyze such oceanographic data, in cooperation with other agencies of the Government, or not, as may be in the national interest.

H. Rept. 1194, Coast Guard Oceanographic Research (Report from the Committee of Conference 87th Congress, 1st Session, to accompany H. R. 6845), 3 pp., printed. The Committee recommended that the House recede from its disagreement to the amendment of the Senate, and agree to same with amendment. The Senate agree to same. Contains recommendations of Conference Committee and Statement of the Managers of the House.

On September 19, the Senate adopted the conference report and on September 21 the House adopted the conference report.

On September 25, the Committee on House Administration reported that H. R. 6845 was sent to the President for signature. President approved bill on Oct. 5 (P. L. 87-396).

Oceanography 1961--Phase 3 (Hearings before the Subcommittee on Oceanography of the Committee on Merchant Marine and Fisheries, U. S. House of Representatives, 87th Congress, 1st Session on H. R. 4276), 379 pp., printed. Contains text of bill; testimony of various naval officers, scientists, and government officials; reports of ten government departments; and 3 tables, 3 charts, and 1 appendix. Would establish the National Oceanographic Council, composed of the Secretary of the Treasury, the Secretary of Defense, the Secretary of the Interior, the Secretary of Commerce, the Chairman of the Atomic Energy Commission and the Director of the National Science Foundation. The Council would be required to develop long-range plans for research, development, studies, and surveys of the aquatic environment, and coordinate the efforts of all Government agencies in the field of oceanography. The Council would be directed to establish a National Oceanographic Data Center, whose functions would be to (1) acquire, assemble, process, and disseminate all scientific and technological oceanographic and related environmental data; (2) conduct research and other projects within the fields of its activities for any department, agency, or instrumentality of the United States on a cost reimbursable basis, and (3) exchange or sell, on a cost reimbursable basis; such data, publications, or other information of the center as the Council deems to be in the public interest.

PORTLAND HARBOR, MAINE, IMPROVEMENTS: On September 15, the Senate proceeded to consider S. 2394, to authorize the improvement of Portland Harbor, Maine, with an amendment. Amendment was agreed to, bill ordered to be engrossed for a third reading, was read the third time, and passed.

SALTONSTALL-KENNEDY ACT FUNDS REAPPORTIONMENT: Fishery Research and Rehabilitation (Amendments to Saltonstall-Kennedy Act) (June 15, 1961, Hearings before the Merchant Marine and Fisheries Subcommittee of the Committee on Commerce, United States Senate, 87th Congress, 1st Session, on S. 1230), 107 pp., printed. Contains statements and communications from various Senators, government officials, Chambers of Commerce, fisheries associations, and industry officials; 1 chart and 25 tables. The Saltonstall-Kennedy Act of 1954 provides an amount equivalent to 30 percent of duties collected on the importation of fisheries products annually be used to rehabilitate our domestic fishing industry. Under S. 1230 an additional sum equal to 30 percent of the custom receipts on fisheries products from the 30 percent gross custom receipts appropriated to the Secretary of Agriculture would be turned over to the Secretary of Interior to be placed in another special fund for allocation to the States in proportion to the value of the raw fish landed and of manufactured and processed fishery merchandise manufactured within each State, averaged over the preceding 3 years for which figures are available.

SPORT FISHING STAMP: H. R. 9475 (Fulton), introduced in House Sept. 27, a bill to provide for the issuance of a Federal fishing stamp in connection with noncommercial fishing licenses for nonresidents in States, and for other purposes; to Committee on Merchant Marine and Fisheries. Stamps would be sold at U. S. postoffices, under regulations prescribed by the Postmaster General. Fee is to be set by the Secretary of the Interior. Proceeds from sale of stamps would be paid into a special "Fishing Stamp Fund," and shall be available to the Secretary of the Interior to promote fishing in national parks, including stocking of streams, etc., within national parks.

STATE DEPARTMENT APPROPRIATIONS FOR FY 1962: On September 15, the Committee on House Administration reported it had presented to the President for his approval H. R. 7371, an act making appropriations for the Departments of State and Justice, the Judiciary, and related agencies for the fiscal year ending June 30, 1962, and for other purposes. On September 21, the President signed H. R. 7371 (P. L. 87-265). Includes funds for international fisheries commissions.

SUPPLEMENTAL APPROPRIATIONS FOR DISASTER RELIEF, ETC.: S. Doc. 54, Proposed Supplemental Appropriations for Disaster Relief, Small Business Administration, the Corps of Engineers, and the Department of Agriculture (September 21, 1961, Communication from the President of the United States Transmitting Proposed Supplemental Appropriations for the Fiscal Year 1962 in the Amount of $15 Million for Disaster Relief, $30 Million for the Small Business Administration, $5 Million for the Corps of Engineers, and $5 Million for the Department of Agriculture), 3 pp., printed. Contains letter from the President submitting proposed supplemental appropriations as submitted to him from the Director of the Bureau of the Budget. Includes funds in amount of $5 million appropriated to the President for unforseeable conditions of severe nature, to assure that adequate funds will be available to give assistance to disaster-stricken areas during the remainder of fiscal year; and for the Small Business Administration, appropriates $30 million for the revolving fund. Would enable SBA to make disaster loans to victims of recent hurricane in Texas, and other disasters which could arise during balance of fiscal year.

SUPPLEMENTAL APPROPRIATIONS FOR FY 1962: H. R. 9169 (Thomas), introduced in House September 12, a bill making supplemental appropriations for the fiscal year ending June 30, 1962, from the House Committee on Appropriations, and committed to the Committee of the Whole House on the State of the Union (H. Rept. 1175). For the Fish and Wildlife Service, the Committee has allowed $400,000, or one-half the supplemental request of the Bureau of Commercial Fisheries to conduct additional research on the problem of passing mi-

grant fish over dams. This is in addition to $527,000 in the regular 1962 fund bill and $252,000 of Saltonstall-Kennedy funds carried over from last year, making a total of $1,179,000 for the 1962 program. The Committee pointed out that this almost triples the level of 1961, and any additional requirement should be absorbed out of the $3,000,000 of Saltonstall-Kennedy funds which are available for special emergency projects. Also provides additional amounts for: Public Health Service "Water supply and water pollution control," for grants to States under section 5 of the Federal Water Pollution Control Act as amended, and funds for depressed areas. On September 15, the House passed H. R. 9169. On September 16, the bill was received in Senate and referred to Committee on Appropriations.

On September 18, the Senate Committee on Appropriations began hearings on H. R. 9169.

On September 21 the Senate Committee on Appropriations concluded hearings on H. R. 9169 after hearing various Congressmen and witnesses from the Department of the Interior and various other Departments. Committee held executive session September 22, to mark up bill.

On September 22, the Senate Committee on Appropriations, in executive session, ordered favorably reported with amendments, H. R. 9169 Smathers (Florida), submitted a notice in writing to suspend the rule, to amend the bill to add:

"Amendment to Fair Labor Standards Act of 1938

"Section 13(a) of the Fair Labor Standards Act of 1938 is amended by striking out the period at the end of paragraph (22) and inserting in lieu thereof; 'or' and by adding at the end thereof the following new paragraph:

" '(23) any employee employed in the processing, marketing, freezing, curing, storing, packing for shipment, or distributing of shellfish unless canne and retorted.'

"Section 13(b) (4) of such Act is amended by inserting after 'vegetable life' the following: '(other than shellfish unless canned and retorted).' "

This would have meant if passed that employees employed in shellfish processing (other than canned and retorted) would be exempt from the new minimum wage law. This amendment was not approved and did not become part of H. R. 9169.

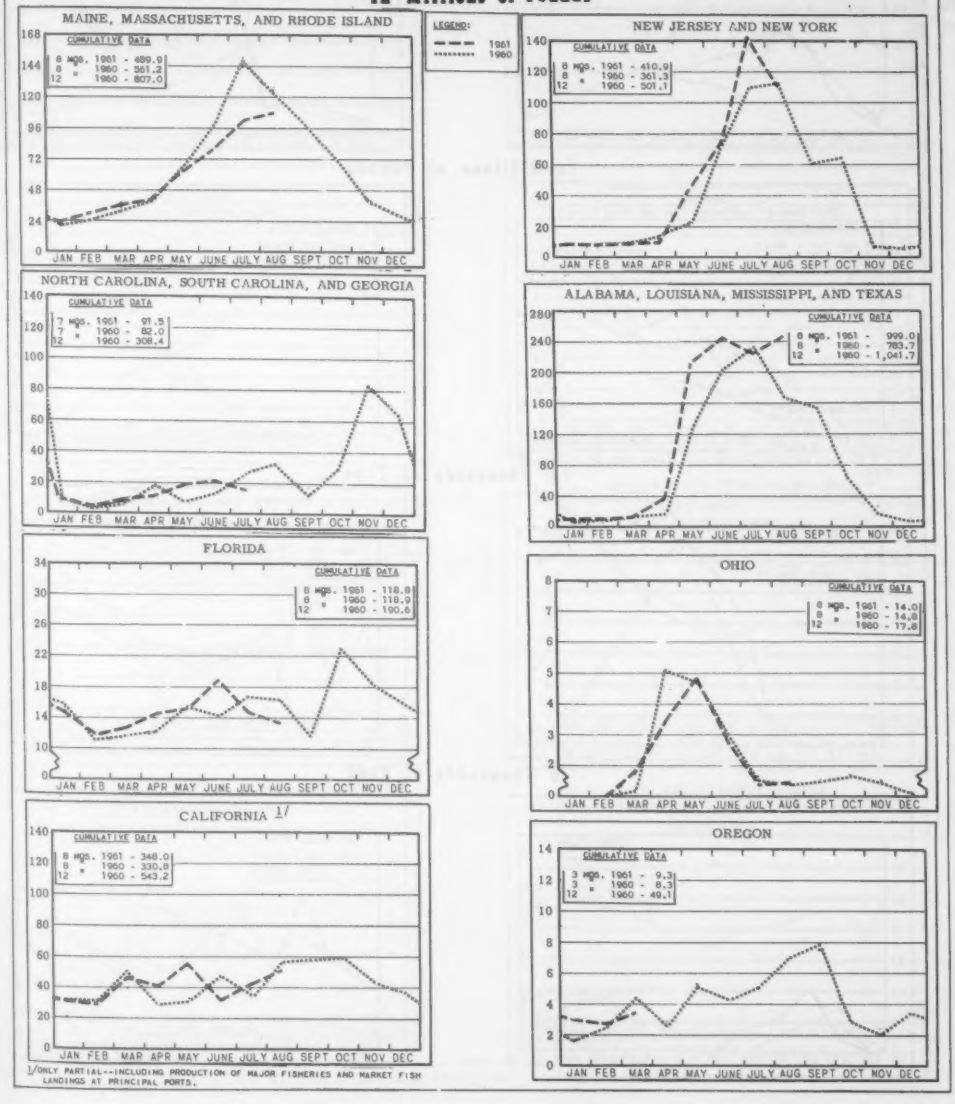
On September 26, the Senate passed H. R. 9169, after adopting all committee amendments en bloc--which were then considered as original text for purpose of further amendment. Senate then passed a series of other amendments proposed by Senators Russell, Morse, Mansfield, Hill, Long, and Hayden. The Senate insisted on its amendments, asked for conference with House, and appointed conferees. The House disagreed to amendments of the Senate on H. R. 9169, agreed to conference on disagreeing votes of the two Houses, and appointed conferees. The conferees, in executive session, agreed to file conference report on differences of Senate- and House-passed versions of bill (H. Rept. 1272). On September 27, by voice vote the House adopted the conference report, insisted on its disagreement to amendment 96, and sent bill back to the Senate. The Senate agreed to conference report September 27, and the bill was passed and cleared for President. On September 30, the President signed the bill (P. L. 87-332).

H. Rept. 1272, Supplemental Appropriation Bill, 1962 (Report of Committee of Conference, 87th Congress, 1st Session, to accompany H. R. 9169), 12 pp., printed. Committee submitted to their respective Houses the action agreed upon and recommended in conference. Contains statement of managers on part of the House, and explanation of each of the amendments.

TUNA CONVENTION ACT OF 1950 AMENDMENTS: S. 2568 (Magnuson), introduced in Senate September 18 a bill to amend the act of September 7, 1950, to extend the regulatory authority of the Federal and State agencies concerned under the terms of the Convention for the establishment of an Inter-American Tropical Tuna Commission, signed at Washington, May 31, 1949, and for other purposes; to the Committee on Commerce. The Inter-American Tropical Tuna Commission was originally conceived as an investigatory body. But with recent development of new fishing techniques and gear, namely purse seining with the nylon net and power block, the productivity of the U. S. tuna fleet has increased rapidly, particularly as regards yellowfin tuna. An annual yellowfin tuna quota for the entire convention area is the objective of this bill.

CHART 1 - FISHERY LANDINGS for SELECTED STATES

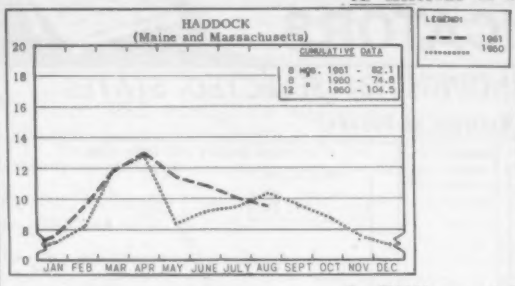
In Millions of Pounds

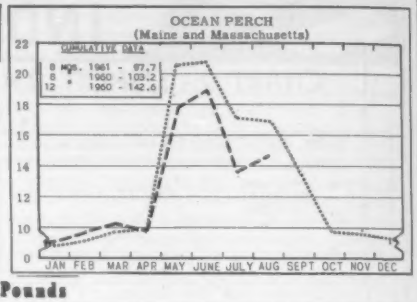

MAINE, MASSACHUSETTS, AND RHODE ISLAND
CUMULATIVE DATA
8 MOS. 1961 - 489.9
8 " 1960 - 361.2
12 " 1960 - 807.0
LEGEND:
1961
1960
NEW JERSEY AND NEW YORK
CUMULATIVE DATA
8 MOS. 1961 - 410.9
8 " 1960 - 361.3
12 " 1960 - 501.1
NORTH CAROLINA, SOUTH CAROLINA, AND GEORGIA
CUMULATIVE DATA
7 MOS. 1961 - 91.5
7 " 1960 - 82.0
12 " 1960 - 308.4
ALABAMA, LOUISIANA, MISSISSIPPI, AND TEXAS
CUMULATIVE DATA
8 MOS. 1961 - 999.0
8 " 1960 - 783.7
12 " 1960 - 1,041.7
FLORIDA
CUMULATIVE DATA
8 MOS. 1961 - 118.8
8 " 1960 - 118.9
12 " 1960 - 190.6
OHIO
CUMULATIVE DATA
8 MOS. 1961 - 14.0
8 " 1960 - 14.8
12 " 1960 - 17.8
CALIFORNIA 1/
CUMULATIVE DATA
8 MOS. 1961 - 348.0
8 " 1960 - 330.8
12 " 1960 - 543.2
OREGON
CUMULATIVE DATA
3 MOS. 1961 - 9.3
3 " 1960 - 8.3
12 " 1960 - 49.1
JAN FEB MAR APR MAY JUNE JULY AUG SEPT OCT NOV DEC

1/ONLY PARTIAL--INCLUDING PRODUCTION OF MAJOR FISHERIES AND MARKET FISH LANDINGS AT PRINCIPAL PORTS.

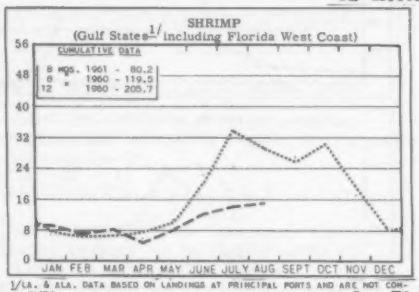
CHART 2 - LANDINGS for SELECTED FISHERIES

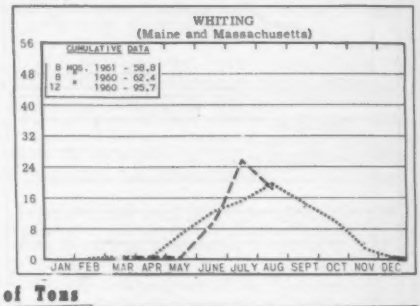
In Millions of Pounds




OCEAN PERCH
(Maine and Massachusetts)
CUMULATIVE DATA
8 MOS. 1961 - 97.7
8 " 1960 - 103.2
12 " 1960 - 142.6
JAN FEB MAR APR MAY JUNE JULY AUG SEPT OCT NOV DEC

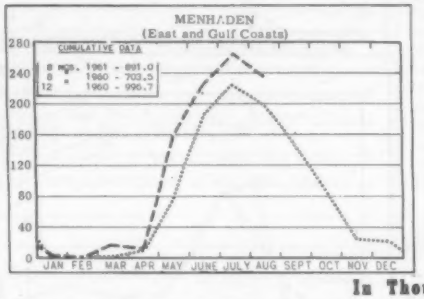
In Millions of Pounds

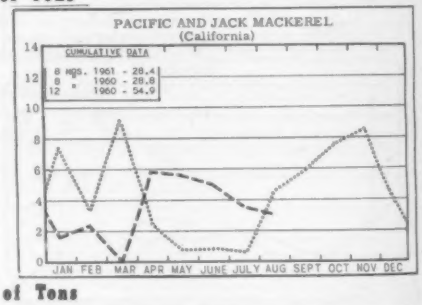

SHRIMP
(Gulf States 1/ including Florida West Coast)
CUMULATIVE DATA
8 MOS. 1961 - 80.2
8 " 1960 - 119.5
12 " 1960 - 205.7
JAN FEB MAR APR MAY JUNE JULY AUG SEPT OCT NOV DEC


WHITING
(Maine and Massachusetts)
CUMULATIVE DATA
8 MOS. 1961 - 58.8
8 " 1960 - 62.4
12 " 1960 - 95.7
JAN FEB MAR APR MAY JUNE JULY AUG SEPT OCT NOV DEC

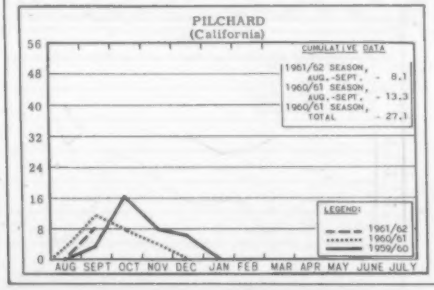
1/LA. & ALA. DATA BASED ON LANDINGS AT PRINCIPAL PORTS AND ARE NOT COMPLETE.

In Thousands of Tons


MENHADEN
(East and Gulf Coasts)
CUMULATIVE DATA
8 MOS. 1961 - 691.0
8 " 1960 - 703.5
12 " 1960 - 996.7
JAN FEB MAR APR MAY JUNE JULY AUG SEPT OCT NOV DEC


PACIFIC AND JACK MACKEREL
(California)
CUMULATIVE DATA
8 MOS. 1961 - 28.4
8 " 1960 - 28.8
12 " 1960 - 54.9
JAN FEB MAR APR MAY JUNE JULY AUG SEPT OCT NOV DEC

In Thousands of Tons



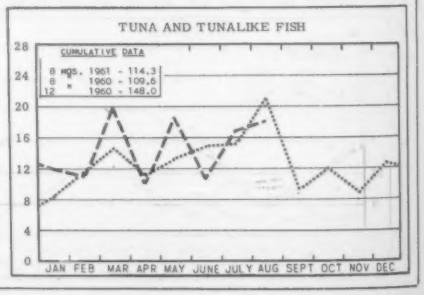
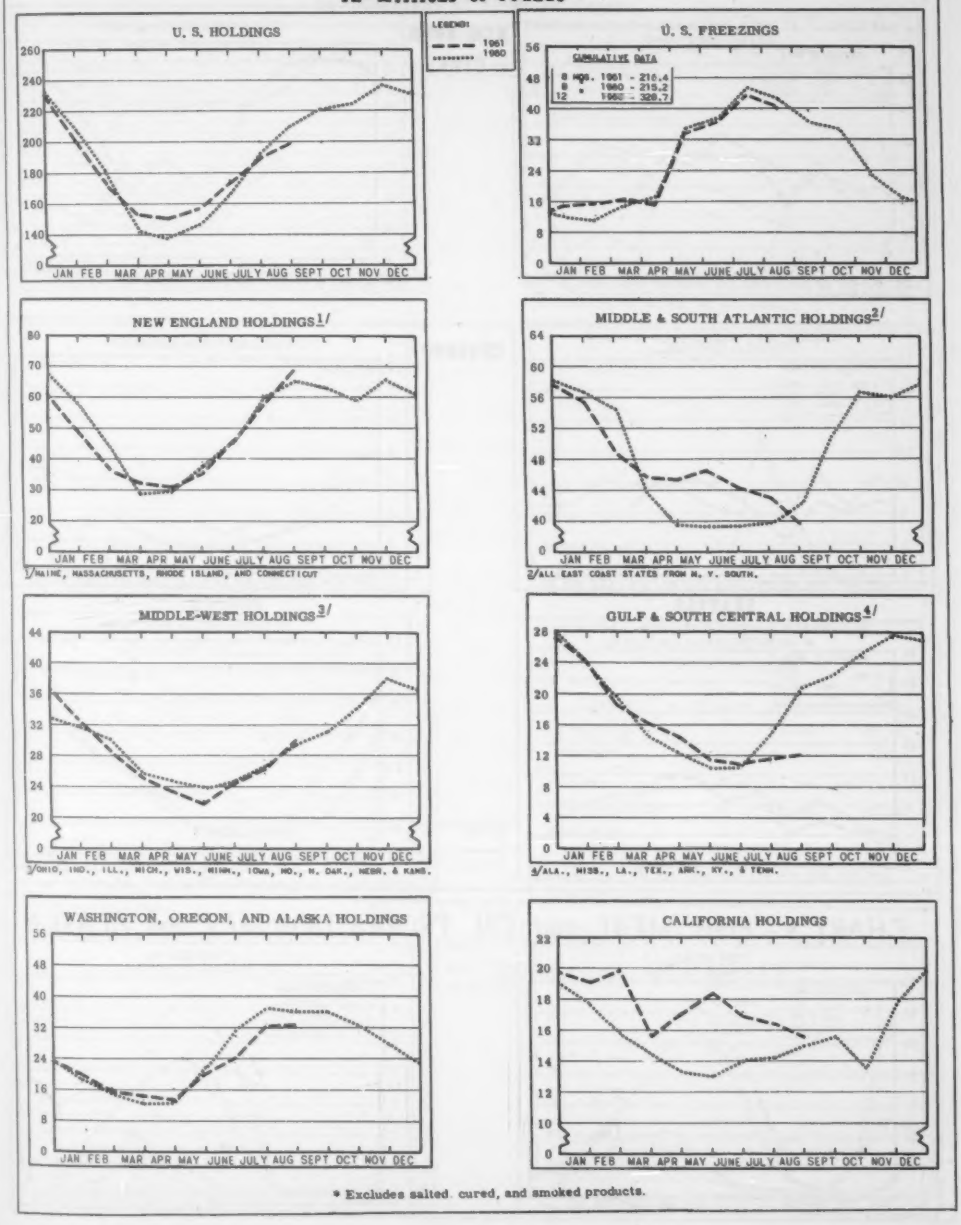

TUNA AND TUNALIKE FISH
CUMULATIVE DATA
8 MOS. 1961 - 114.3
8 " 1960 - 109.6
12 " 1960 - 148.0
JAN FEB MAR APR MAY JUNE JULY AUG SEPT OCT NOV DEC

CHART 3 - COLD-STORAGE HOLDINGS and FREEZINGS of FISHERY PRODUCTS *

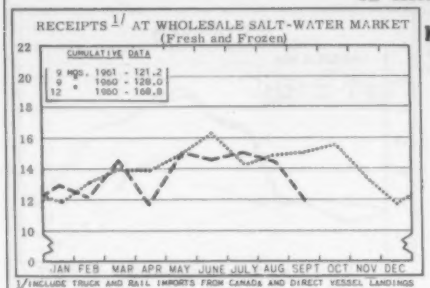
In Millions of Pounds


U. S. HOLDINGS
LEGEND
1961
1960
U. S. FREEZINGS
CUMULATIVE DATA
8 mos. 1961 - 216.4
8 " 1960 - 219.2
12 " 1960 - 328.7
NEW ENGLAND HOLDINGS 1/
MIDDLE & SOUTH ATLANTIC HOLDINGS 2/
MIDDLE-WEST HOLDINGS 3/
GULF & SOUTH CENTRAL HOLDINGS 4/
WASHINGTON, OREGON, AND ALASKA HOLDINGS
CALIFORNIA HOLDINGS
JAN FEB MAR APR MAY JUNE JULY AUG SEPT OCT NOV DEC
1/ MAINE, MASSACHUSETTS, RHODE ISLAND, AND CONNECTICUT
2/ ALL EAST COAST STATES FROM N. Y. SOUTH.
3/ OHIO, IND., ILL., MICH., WIS., MINN., IOWA, MO., N. DAK., NEBR. & KANS.
4/ ALA., MISS., LA., TEX., ARK., KY., & TENN.

* Excludes salted, cured, and smoked products.

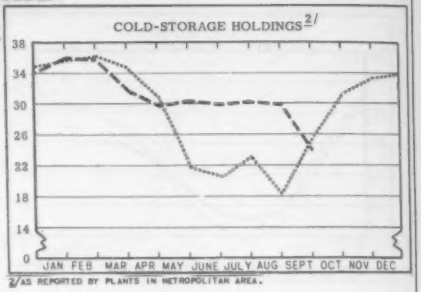
CHART 4 - RECEIPTS and COLD-STORAGE HOLDINGS of FISHERY PRODUCTS at PRINCIPAL DISTRIBUTION CENTERS

In Millions of Pounds

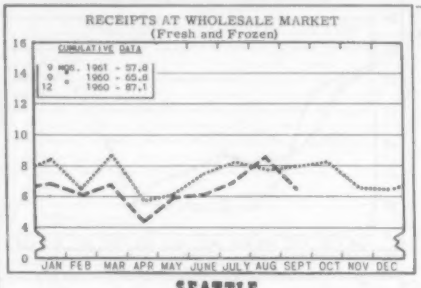

RECEIPTS 1/ AT WHOLESALE SALT-WATER MARKET
(Fresh and Frozen)
CUMULATIVE DATA
9 MOS. 1961 - 121.2
9 " 1960 - 128.0
12 " 1960 - 160.8
JAN FEB MAR APR MAY JUNE JULY AUG SEPT OCT NOV DEC

1/INCLUDE TRUCK AND RAIL IMPORTS FROM CANADA AND DIRECT VESSEL LANDINGS AT NEW YORK CITY.

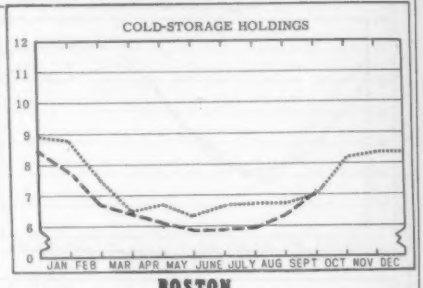
NEW YORK CITY



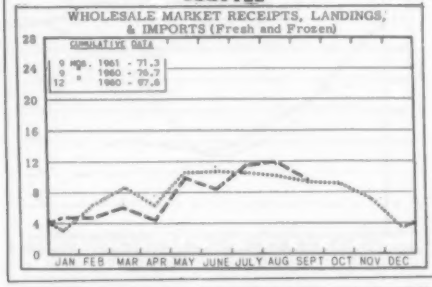
2/AS REPORTED BY PLANTS IN METROPOLITAN AREA.


RECEIPTS AT WHOLESALE MARKET
(Fresh and Frozen)
CUMULATIVE DATA
9 MOS. 1961 - 57.8
9 " 1960 - 65.8
12 " 1960 - 87.1
JAN FEB MAR APR MAY JUNE JULY AUG SEPT OCT NOV DEC

CHICAGO



SEATTLE


WHOLESALE MARKET RECEIPTS, LANDINGS,
& IMPORTS (Fresh and Frozen)
CUMULATIVE DATA
9 MOS. 1961 - 71.3
9 " 1960 - 76.7
12 " 1960 - 97.6
JAN FEB MAR APR MAY JUNE JULY AUG SEPT OCT NOV DEC

BOSTON

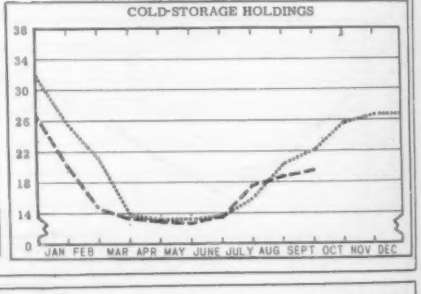
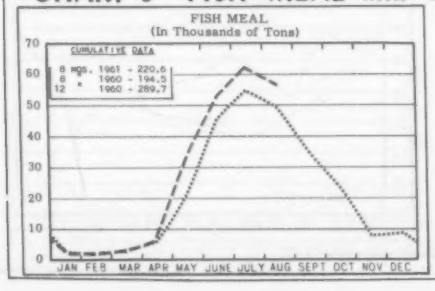


CHART 5 - FISH MEAL and OIL PRODUCTION - U.S and ALASKA


FISH MEAL
(In Thousands of Tons)
CUMULATIVE DATA
8 MOS. 1961 - 220.6
8 " 1960 - 194.5
12 " 1960 - 289.7
JAN FEB MAR APR MAY JUNE JULY AUG SEPT OCT NOV DEC

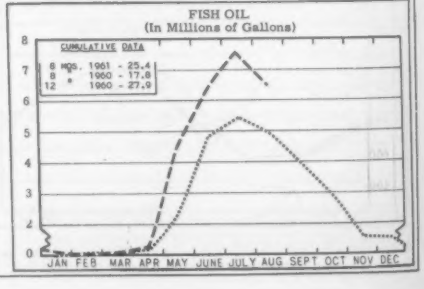
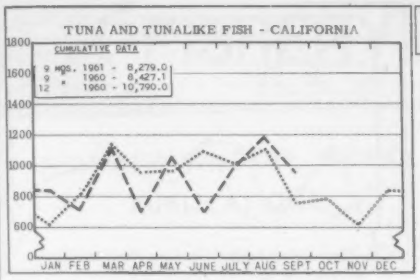
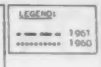
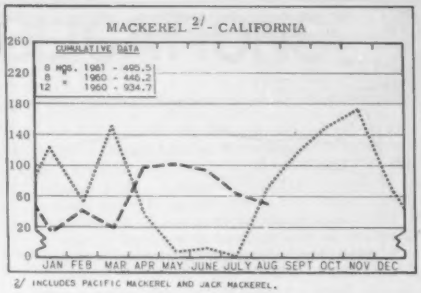

FISH OIL
(In Millions of Gallons)
CUMULATIVE DATA
8 MOS. 1961 - 25.4
8 " 1960 - 17.8
12 " 1960 - 27.9
JAN FEB MAR APR MAY JUNE JULY AUG SEPT OCT NOV DEC

CHART 6 - CANNED PACKS of SELECTED FISHERY PRODUCTS

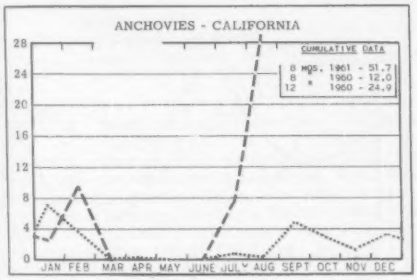
In Thousands of Standard Cases

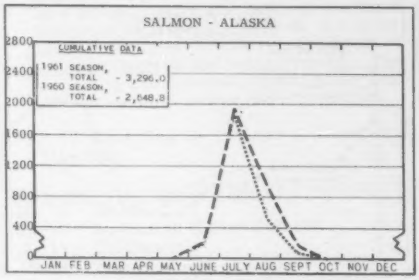


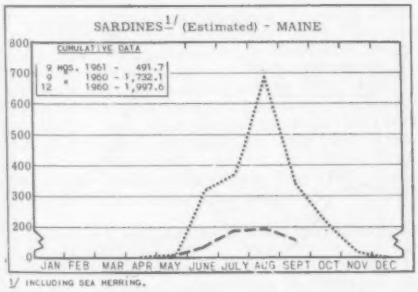




2/ INCLUDES PACIFIC MACKEREL AND JACK MACKEREL.



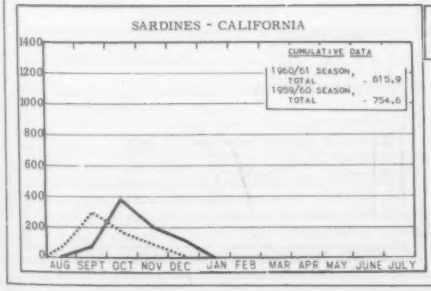


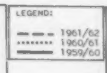


1/ INCLUDING SEA HERRING.

STANDARD CASES

Variety	No. Cans	Designation	Net Wgt.
SARDINES.....	100	¼ drawn	3¾ oz.
SHRIMP.....	48	--	5 oz.
TUNA.....	48	# ½ tuna	6 & 7 oz.
PILCHARDS...	48	# 1 oval	15 oz.
SALMON.....	48	1-lb. tall	16 oz.
ANCHOVIES...	48	½-lb.	8 oz.





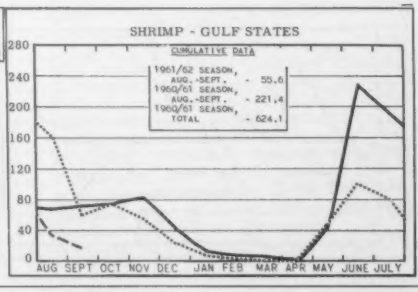
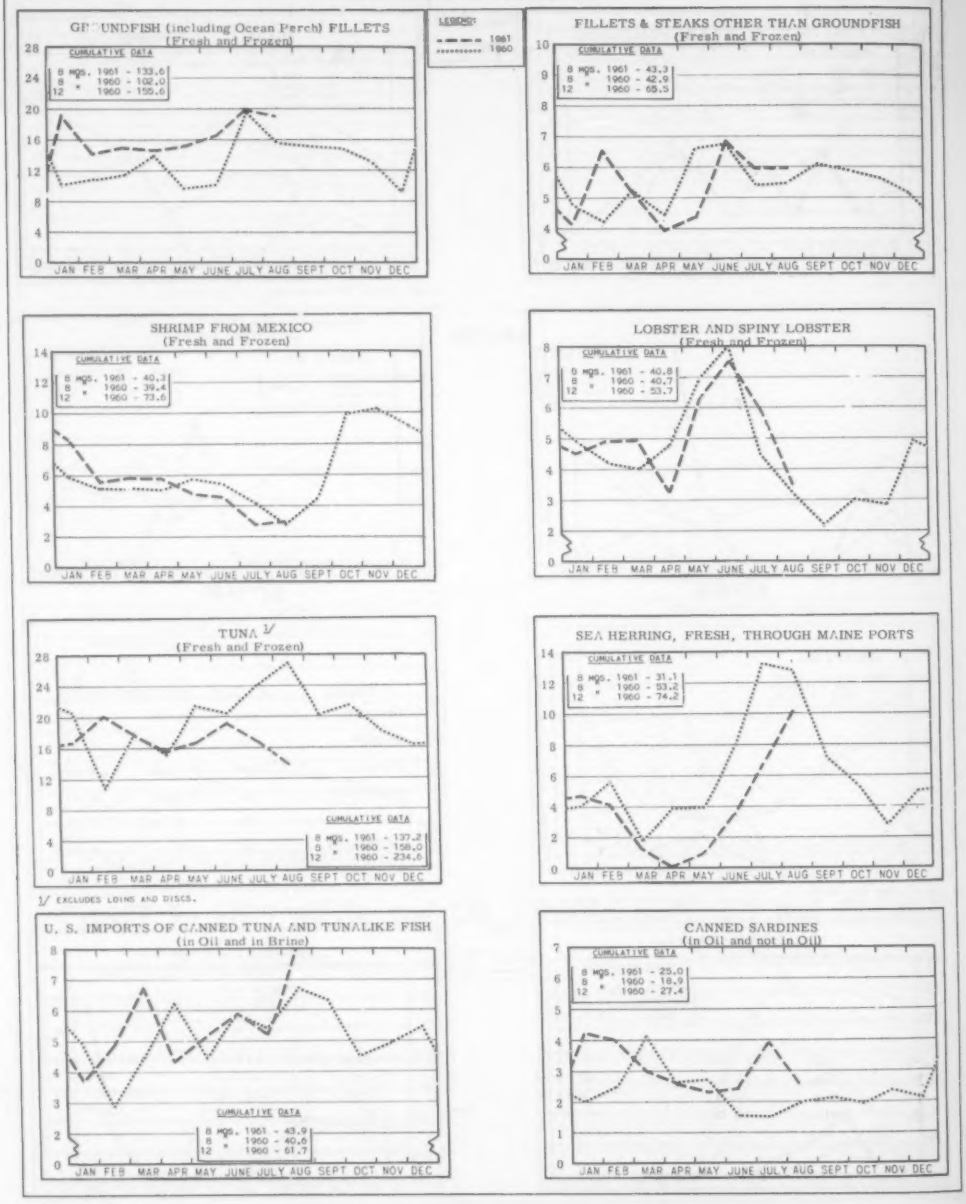
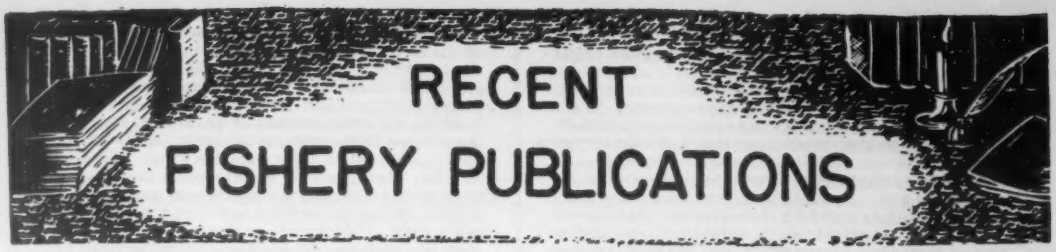


CHART 7 - U.S. FISHERY PRODUCTS IMPORTS

In Millions of Pounds


GROUNDFISH (including Ocean Perch) FILLETS
(Fresh and Frozen)
CUMULATIVE DATA
6 MOS. 1961 - 133.6
6 " 1960 - 102.0
12 " 1960 - 155.6
LEGEND:
1961
1960
JAN FEB MAR APR MAY JUNE JULY AUG SEPT OCT NOV DEC
FILLETS & STEAKS OTHER THAN GROUNDFISH
(Fresh and Frozen)
CUMULATIVE DATA
6 MOS. 1961 - 43.3
6 " 1960 - 42.9
12 " 1960 - 65.3
SHRIMP FROM MEXICO
(Fresh and Frozen)
CUMULATIVE DATA
6 MOS. 1961 - 40.3
6 " 1960 - 39.4
12 " 1960 - 73.6
LOBSTER AND SPINY LOBSTER
(Fresh and Frozen)
CUMULATIVE DATA
6 MOS. 1961 - 40.8
6 " 1960 - 40.7
12 " 1960 - 53.7
TUNA 1/
(Fresh and Frozen)
CUMULATIVE DATA
6 MOS. 1961 - 137.2
6 " 1960 - 158.0
12 " 1960 - 234.6
SEA HERRING, FRESH, THROUGH MAINE PORTS
CUMULATIVE DATA
6 MOS. 1961 - 31.1
6 " 1960 - 33.2
12 " 1960 - 74.2
U. S. IMPORTS OF CANNED TUNA AND TUNALIKE FISH
(in Oil and in Brine)
CUMULATIVE DATA
6 MOS. 1961 - 43.9
6 " 1960 - 40.6
12 " 1960 - 61.7
CANNED SARDINES
(in Oil and not in Oil)
CUMULATIVE DATA
6 MOS. 1961 - 25.0
6 " 1960 - 16.9
12 " 1960 - 27.4

1/ EXCLUDES LOINS AND DISCS.



FISH AND WILDLIFE SERVICE PUBLICATIONS

THESE PROCESSED PUBLICATIONS ARE AVAILABLE FREE FROM THE DIVISION OF INFORMATION, U. S. FISH AND WILDLIFE SERVICE, WASHINGTON 25, D.C. TYPES OF PUBLICATIONS ARE DESIGNATED AS FOLLOWS:

CFS - CURRENT FISHERY STATISTICS OF THE UNITED STATES.
FL - FISHERY LEAFLETS.
SL - BRANCH OF STATISTICS LIST OF DEALERS IN AND PRODUCERS OF FISHERY PRODUCTS AND BYPRODUCTS.
SEP.- SEPARATES (REPRINTS) FROM COMMERCIAL FISHERIES REVIEW.
TL - TECHNICAL REPORT ON A SPECIFIC SUBJECT.

Number Title

CFS-2478 - South Atlantic Fisheries, 1960 Annual Summary, 6 pp.
CFS-2636 - Frozen Fish Report, June 1961, 8 pp.
CFS-2648 - Massachusetts Landings, April 1961, 5 pp.
CFS-2653 - Maine Landings, June 1961, 4 pp.
CFS-2656 - Shrimp Landings, March 1961, 6 pp.
CFS-2657 - Frozen Fish Report, July 1961, 8 pp.
CFS-2658 - New Jersey Landings, June 1961, 4 pp.
CFS-2661 - Michigan Landings, June 1961, 2 pp.
CFS-2662 - Wisconsin Landings, June 1961, 2 pp.
CFS-2663 - Minnesota Landings, June 1961, 2 pp.
CFS-2664 - Louisiana Landings, January 1961, 2 pp.
CFS-2665 - New York Landings, June 1961, 5 pp.
CFS-2666 - Virginia Landings, June 1961, 4 pp.
CFS-2667 - Ohio Landings, June 1961, 2 pp.
CFS-2668 - Texas Landings, May 1961, 3 pp.
CFS-2670 - North Carolina Landings, July 1961, 4 pp.
CFS-2671 - Maryland Landings, July 1961, 3 pp.
CFS-2672 - Georgia Landings, July 1961, 2 pp.
CFS-2673 - Fish Meal and Oil, July 1961, 2 pp.
CFS-2674 - Florida Landings, July 1961, 9 pp.
CFS-2679 - South Carolina Landings, July 1961, 2 pp.

FL-336uu - Commercial Fisheries Outlook, January-March 1961, 44 pp.

FL-336 - Commercial Fisheries Outlook, April-June 1961, 4 pp.

FL-336 - Commercial Fisheries Outlook, July-September 1961, 4 pp.

FL-443 (Revised June 1961) - Construction of a Garden Fish Pool, 4 pp., illus.

FL-505 - Shipworms and Other Marine Borers, by Michael Castagna, 12 pp., illus., processed, June 1961. Gives the classification, description, reproduction and early life history, distribution, and damage of shipworms, boring clams, and marine-boring crustaceans. Control and prevention are also discussed. Includes a bibliography of publications on marine borers.

FL-510 - Great Lakes Trawler Conversion, by William G. Gordon and Keith D. Brouillard, 14 pp., illus., March 1961. Commercial fishermen of the Great Lakes have been forced to reconsider the economic feasibility of their methods of operation because of a recent decline in availability of traditionally-used fish stocks and an explosive increase in noncommercial species. The future of the fishing industry depends on producing fishery products at competitive prices. More efficient harvesting of existing stocks is necessary. Methods of converting from traditional Great Lakes vessels to stern-set trawlers or draggers are being evolved. This leaflet discusses in detail vessel conversions, trawling gear, and economic considerations involved.

FL-517 - Ambergris, by Lola T. Dees, 7 pp., illus., May 1961.

Wholesale Dealers in Fishery Products, 1961 (Revised):
SL- 1 - Maine.
SL-19 - Louisiana (Coastal Area).
SL-21 - California.

TL-16 - A Literature Review on Possible Uses for Dogfish, by Kathryn L. Osterhaug, 43 pp., February 1961.

Sep. No. 630 - An Interim Report of the Cape Canaveral Calico Scallop Bed.

Fisheries Loan Fund, Fiscal Year 1959, Fish and Wildlife Circular 113, 14 pp., processed. Covers organization of the Office of Loans and Grants, operational changes, and status of the loan fund, and practical value of the program. Includes graphs showing number and value of loan applications received by areas, and number and value of loans approved by areas.

The Groundfish Industries of New England and Canada (A Comparative Economic Analysis), by Edward J. Lynch, Richard M. Doherty, and George P. Draheim, Circular 121, 192 pp., July 1961. This report is an attempt to qualify and list both internal and external causes of the decline of the New England groundfish industry. The study focuses on the comparative costs of production of New England groundfish vessels and those in the Canadian Atlantic Provinces. It deals with the economic, social, and biological factors which have affected both the New England and Canadian groundfish industries. Such topics as background and the problem areas; the Atlantic Provinces of Canada; haddock and other groundfish resources; costs and earnings of New England trawlers; comparative costs in the Canadian and New England groundfish industries; and resources and productivity are all discussed.

The Soft-Shell Clam Industry of Maine, by Robert L. Dow and Dana E. Wallace, Circular 110, 41 pp., illus., June 1961. This report examines the organization and problems of the Maine soft-shell clam industry as well as the physical factors which limit market supplies from this public resource. The influence of public opinion, conservation legislation, and current management practices upon the industry are discussed in detail. The effect of hydrological, geological, and meteorological conditions upon the clam flats and the problems of predation are discussed and illustrated by photographs. Also included are statistical tables covering U. S. production of soft-shell clams by states, 1954-58; production and price per pound of clams, 1887-1959; total landings; average daily catch; and related topics.

THE FOLLOWING PUBLICATIONS ARE AVAILABLE ONLY FROM THE SPECIFIC OFFICE MENTIONED.

(Baltimore) Monthly Summary--Fishery Products, August 1961, 8 pp. (Market News Service, U. S. Fish and Wildlife Service, 103 S. Gay St., Baltimore 2, Md.) Receipts of fresh- and salt-water fish and shellfish at Baltimore by species and by states and provinces; total receipts by species and comparisons with previous periods; and wholesale prices for fresh fishery products on the Baltimore market; for the month indicated.

California Fishery Market News Monthly Summary, Part I - Fishery Products Production and Market Data, July 1961, 16 pp. (Market News Service, U.S. Fish and Wildlife Service, Post Office Bldg., San Pedro, Calif.) California cannery receipts of tuna and tunalike fish and other species used for canning; pack of canned tuna, tunalike fish, mackerel, and anchovies; market fish receipts at San Pedro, Santa Monica, and Eureka areas; California and Arizona imports; canned fish and frozen shrimp prices; ex-vessel prices for cannery fish; Oregon and Washington receipts (domestic and imports) of fresh and frozen tuna and tunalike fish; for the month indicated.

California Fishery Market News Monthly Summary, Part II - Fishing Information, May and June 1961, 11 and 9 pp., respectively, illus. (U. S. Bureau of Commercial Fisheries, Biological Laboratory, P.O. Box 6121, Pt. Loma Station, San Diego 6, Calif.) Contains sea-surface temperatures, fishing and research information of interest to the West Coast tuna-fishing industry and marine scientists; for the months indicated.

(Chicago) Monthly Summary of Chicago's Wholesale Market Fresh and Frozen Fishery Products Receipts, Prices, and Trends, August 1961, 14 pp. (Market News Service, U. S. Fish and Wildlife Service, 565 W. Washington St., Chicago 6, Ill.) Receipts at Chicago by species and by states and provinces for fresh- and salt-water fish and shellfish; and weekly wholesale prices for fresh and frozen fishery products; for the month indicated.

Field Tests of a Chemical Method for the Control of Marine Gastropods, by H. C. Davis, V. L. Loosanoff, and C. L. MacKenzie, Jr., Bulletin No. 3, vol. 25, pp. 3-15, illus., processed. U. S. Bureau of Commercial Fisheries, Biological Laboratory, Milford, Conn., August 7, 1961. A report presented at the convention of the National Shellfisheries Association on the method of chemical control of oyster drills and other gastropods. During the summer of 1960 extensive field tests were conducted, using one of the basic formulae designed to control oyster drills and other gastropods. The purpose of these tests was fourfold: (1) to evaluate several methods of application of chemically-treated sand; (2) to determine the effectiveness of several variations of the method in the control of oyster drills and other gastropods; (3) to determine the effect of treatment on other fauna; and (4) to determine the effect of treatment on setting of oysters and starfish in treated areas. Materials and methods used as well as experimental results and conclusions are discussed. Also included are illustrations on the method of spreading treated sand, location of oyster grounds used in tests, and details of the test plots.

Gulf of Mexico Monthly Landings, Production and Shipments of Fishery Products, July 1961, 8 pp. (Market News Service, U. S. Fish and Wildlife Service, Rm. 609, 600 South St., New Orleans 12, La.) Gulf States shrimp, oyster, finfish, and blue crab landings; crab meat production; LCL express shipments from New Orleans; wholesale prices of fish and shellfish on the New Orleans French Market; fishery imports at Port Isabel and Brownsville, Texas, from Mexico; and sponge sales; for the month indicated.

Monthly Summary of Fishery Products Production in Selected Areas of Virginia, North Carolina, and Maryland, August 1961, 4 pp. (Market News Service, U. S. Fish and Wildlife Service, 18 S. King St., Hampton, Va.) Landings of food fish and shellfish and production of crab meat and shucked oysters for the Virginia areas of Hampton Roads, Chincoteague, Lower Northern Neck, and Lower Eastern Shore; the Maryland areas of Crisfield, Cambridge, and Ocean City; and the North Carolina areas of Atlantic, Beaufort, and Morehead City; together with cumulative and comparative data on fishery products and shrimp production; for the month indicated.

New England Fisheries--Monthly Summary, July 1961, 22 pp. (Market News Service, U. S. Fish and Wildlife Service, 10 Commonwealth Pier, Boston 10, Mass.) Review of the principal New England fishery ports. Presents data on fishery landings by ports and species; industrial-fish landings and ex-vessel prices; imports; cold-storage stocks of fishery products in New England warehouses; fishery landings and ex-vessel prices for ports in Massachusetts (Boston, Gloucester, New Bedford, Provincetown, and Woods Hole), Maine (Portland and Rockland), Rhode Island (Point Judith), and Connecticut (Stonington); frozen fishery products prices to primary wholesalers at Boston, Gloucester, and New Bedford; and Boston Fish Pier and Atlantic Avenue fishery landings and ex-vessel prices by species; for the month indicated.

New York City's Wholesale Fishery Trade--Monthly Summary, June 1961, 18 pp. (Market News Service, U. S. Fish and Wildlife Service, 155 John St., New York 38, N. Y.) Includes summaries and analyses of receipts and prices on wholesale Fulton Fish Market, including both the salt- and fresh-water sections; imports entered at New York customs district; primary wholesalers' selling prices for fresh, frozen, and selected canned fishery products; marketing trends; and landings at Fulton Fish Market docks and Stonington, Conn.; for the month indicated.

Parasites and Diseases of Warm-Water Fishes, Circular 112, 20 pp. (U. S. Fish and Wildlife Service,

Bureau of Sport Fisheries and Wildlife Fish Farming Experimental Station, Stuttgart, Ark.)

Progress Report on Chemical Methods of Control of Molluscan Enemies, by V. L. Loosanoff, C. L. MacKenzie, Jr., and H. C. Davis, Bulletin No. 8, vol. 24, 20 pp., processed. U. S. Bureau of Commercial Fisheries, Biological Laboratory, Milford, Conn., 1960.

(Seattle) Washington and Alaska Receipts and Landings of Fishery Products for Selected Areas and Fisheries, Monthly Summary, August 1961, 9 pp. (Market News Service, U. S. Fish and Wildlife Service, 706 Federal Office Bldg., 909 First Ave., Seattle 4, Wash.) Includes Seattle's landings by the halibut and salmon fleets reported through the exchanges; landings of halibut reported by the International Pacific Halibut Commission; landings of otter-trawl receipts reported by the Fishermen's Marketing Association of Washington; local landings by independent vessels; coastwise shipments from Alaska by scheduled and non-scheduled shipping lines and airways; imports from British Columbia via rail, motor truck, shipping lines, and ex-vessel landings; and imports from other countries through Washington customs district; for the month indicated.

(Upper Great Lakes Fishery Committee) Minutes - Annual Meeting, Minneapolis, Minnesota, 1959, 59 pp., illus., processed. (U. S. Fish and Wildlife Service, Regional Office, Bureau of Commercial Fisheries, 5 Research Dr., Ann Arbor, Mich.)

Use of Chemically-Treated Cultch for Increased Production of Seed Oysters, by C. L. MacKenzie, Jr., V. L. Loosanoff, and W. T. Gnewuch, Bulletin No. 5, vol. 25, 15 pp., illus., processed. U. S. Bureau of Commercial Fisheries, Biological Laboratory, Milford, Conn., August 21, 1961.

THE FOLLOWING ENGLISH TRANSLATIONS OF FOREIGN LANGUAGE ARTICLES ARE AVAILABLE ONLY FROM THE U. S. FISH AND WILDLIFE SERVICE, BUREAU OF COMMERCIAL FISHERIES, P. O. BOX 3830, HONOLULU, HAWAII.

The Commercial Fishery Situation on the Ivory Coast, by A. Lassarat, 58 pp., illus., processed, June 1961. (Translated from French, Republic of the Ivory Coast, Ministry of Animal Husbandry, Sea Fishery Service, Abidjan. B. P. 1849--T. 51-69, March 1961.) Covers the fishing fleet and its support, tonnage of fishery products landed, and commercial utilization; and the fishing techniques practiced--trawling, seining, and tuna fishing. Small-scale fishing is presently expanding vigorously because fish has become the principal source of cheap protein food. The establishment of the tuna fishery, which depends on putting into service vast refrigeration installations, may give rise to the development of a large canning industry and also a feed industry. The development of fishing and its related industries, which at present employ about 20,000 people, may create additional supplementary jobs. "The future of fisheries on the Ivory Coast is very promising in view of the extent of the market for local consumption and the prospects for development of the tuna industry," concludes the author.

Operations of Japanese Tuna Longliners and Tuna Fishing Conditions in the Equatorial Atlantic (Particularly 1960 Trends), by M. Nagai, K. Kawaguchi, and J. Nakagome, 10 pp., illus., processed, June 1961. (Translated from Japanese, Tuna Fishing, no. 77, April 1961, pp. 16-22.) The third report on the operations of Japanese tuna long-line vessels and the tuna fishing conditions in the equatorial Atlantic. The authors discuss the findings of the Kanagawa Prefecture Fishery Experiment Station. A comparison is made of the operating method with that of the preceding year, and the year-to-year changes in fishing conditions, particularly for yellowfin tuna, are explained. Included is a table showing arrivals and departures of Japanese tuna-fishing vessels from Atlantic ports, 1957-60.

THE FOLLOWING SERVICE PUBLICATIONS ARE FOR SALE AND ARE AVAILABLE ONLY FROM THE SUPERINTENDENT OF DOCUMENTS, WASHINGTON 25, D. C.

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MISCELLANEOUS PUBLICATIONS

THESE PUBLICATIONS ARE NOT AVAILABLE FROM THE FISH AND WILDLIFE SERVICE, BUT USUALLY MAY BE OBTAINED FROM THE ORGANIZATION ISSUING THEM. CORRESPONDENCE REGARDING PUBLICATIONS THAT FOLLOW SHOULD BE ADDRESSED TO THE RESPECTIVE ORGANIZATION OR PUBLISHER MENTIONED. DATA ON PRICES, IF READILY AVAILABLE, ARE SHOWN.

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ALGAE:

"The Nutrient Value of Diatom Algae," by G. K. Barashkov, article, Priroda, vol. 49, no. 6, 1960, p. 100, printed in Russian. Priroda, Izdatel'stvo Akademii Nauk SSSR, Moscow, U.S.S.R.

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"On the Available Lysine in Protein of Fish and Algae," by Haruo Baba, article, Bulletin of the Japanese

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Society of Fisheries, vol. 26, March 1960, pp. 330-333, printed. Japanese Society of Scientific Fisheries, 6-chome, Shiba-Kaigandori, Minato-ku, Tokyo, Japan.

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"A Hypocholesterolemic Factor in Marine Sterols," by E. Reiner, D. R. Idler, and J. D. Wood, article, Canadian Journal of Biochemistry and Physiology, vol. 38, December 1960, pp. 1499-1500, printed. Canadian Journal of Biochemistry and Physiology, The National Research Council, Sussex St., Ottawa, Canada.

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Biosynthesis of Trimethylammonium Compounds in Aquatic Animals. I--Formation of Trimethylamine Oxide and Betaine from C^{14}-Labelled Compounds by Lobster (Homarus americanus)" by E. Bilinski, article, Journal of the Fisheries Research Board of Canada, vol. 17, December 1960, pp. 895-897, printed. Fisheries Research Board of Canada, West Block, Ottawa, Canada.

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Forty-Sixth Biennial Report, California Department of Fish and Game (July 1, 1958, through June 30, 1960), 77 pp., illus., printed. California Department of Fish and Game, 722 Capitol Ave., Sacramento 14, Calif. This report covers in detail the activities of the Department of Fish and Game during the period July 1, 1958, through June 30, 1960. Also included are reports of major policy decisions by the Fish and Game Commission and activities of the Wildlife Conservation Board. The section on inland fisheries discusses trout hatcheries and the research and experimental programs, habitat improvement through chemical treatment of lakes and streams, Kokanee salmon, warm-water fish, and striped bass. The section on marine resources covers salmon and steelhead--lower river salmon project, upper river studies, coastal stream studies, silver salmon, and other activities; sportfisheries--party boat fishing, northern California sportfish, ocean fish habitat development, California bonito, barracuda, white sea bass, and kelp bass; pelagic fisheries--tuna, anchovy, mackerel, and sardines; bottom fisheries--rockfish and California halibut; shellfisheries--abalone, crab, oysters, ocean shrimp, and pismo clam; pollution studies; research vessels; seismic explorations; and biostatistics. Also included in the report are statistical summaries.

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Fisheries Statistics of Canada (Nova Scotia), 1959, 42 pp., printed in French and English, C$1. Queen's Printer and Controller of Stationery, Ottawa, Canada, August 1961. Consists of tables giving the quantity and value of fish and shellfish landed in Nova Scotia, 1944-1959; the quantity and value of fishery products by species and fisheries districts, 1958-1959; capital equipment employed and number of persons engaged in the primary operations by fisheries districts, 1958-1959; and classification of powered fishing craft by over-all length.

Fisheries Statistics of Canada, 1959 (Prince Edward Island), 22 pp., printed in English and French, 50 Canadian cents. Queen's Printer and Controller of Stationery, Ottawa, Canada, July 1961. Contains tables showing the quantity and value of fishery products landed in Prince Edward Island, 1944-1959, by species; quantity and value by species and fisheries districts, 1958-59; capital equipment employed in primary operations, 1958-59; classification of powered fishing craft by over-all length; and number of persons engaged in primary operations by fisheries districts and in the major fisheries of Prince Edward Island.

Fisheries Statistics of Canada, 1960 (British Columbia), 17 pp., illus., printed in French and English, 50 Canadian cents. Queen's Printer and Controller of Stationery, Ottawa, Canada, July 1961. Contains tables giving the quantity and value of fishery products landed in British Columbia in 1948-60, by species; landings and products, quantity and value by species and fisheries districts for 1959-60; capital equipment in the primary fisheries operations, 1959-60; and number of persons engaged in primary fisheries operations, 1959-60.

Fisheries Statistics of Canada, 1960 (Newfoundland), 24 pp., illus., printed in French and English, 50 Canadian cents. Queen's Printer and Controller of Stationery, Ottawa, Canada, July 1961. Presents tables giving the value of fishery products by species, 1956-60; quantity and value of fishery products by species and fisheries areas, 1959-60; capital equipment employed in primary operations by areas, 1959-60; and number of persons engaged in the fisheries by areas, 1959-60.

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Teeming Waters, by Mark Ronayne, Cat. No. Fs31-1960/1, 17 pp., illus., printed, 25 Canadian cents. (Reprinted from Canadian Geographical Journal.) Department of Fisheries of Canada, Ottawa, Canada. (Available from the Queen's Printer, Ottawa, Canada.) A brief but well illustrated article on Canada's marine and inland fisheries. The author states that "...after four and a half centuries, notable changes have come over the fisheries off our east coast, in the species sought, the ships that pursue them and in the catching methods. But one factor remains unchanged--from the earliest days of discovery to the present, the wealth of these waters continues to be a prize coveted by fishermen of many European as well as the two North American nations, and food from these teeming waters continues to follow multilaned routes to many parts of the globe. Richly endowed as she is on the east coast, Canada is no less fortunate in the resource of her Pacific waters. Here, too, are found the requisites of a great natural heritage replete with variety, quality and abundance. Based on the all-important salmon, the west coast fisheries also have access to important stocks of halibut, herring and various groundfish and shellfish species which support a rich and multi-faceted industry."

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"The Dependency of the Fat Content of the Liver of the Carp (Cyprinus carpio) on the Season, the Food, and the Sex, as Well as Its Relation to the Content of Fat-Soluble Vitamin A," by Gunter Ketz, article, Naturwissenschaften, vol. 46, 1959, p. 610, printed in German. Naturwissenschaften, Springer-Verlag, Reichpietschufer 20, Berlin W35, Germany.

CATFISH:

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Preliminary Results of Grey Cod Tagging in Hecate Strait, in 1960 and 1961, by J. A. Thomson, Circular No. 62, 8 pp., illus., processed. Fisheries Research Board of Canada, Biological Station, Nanaimo, B. C., Canada, July 1961.

COMPOSITION:

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"Sodium and Potassium in Puerto Rican Meats and Fish," by Marta Cancio, article, Journal of the American Dietetic Association, vol. 38, April 1961, pp. 341-343, printed. American Dietetic Association, 620 No. Michigan Ave., Chicago 11, Ill.

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Fish and Wildlife Resources (Appendix J, Report on the Comprehensive Survey of the Water Resources of the Delaware River Basin), 129 pp., illus., processed, 75 cents. District Engineer, U. S. Army Engineer District, P. O. Box 8629, Philadelphia 1, Pa. An appendix to a report recommending a comprehensive plan for development of the Delaware River Basin on fish and wildlife resources. It presents reconnaissance-type data regarding the more important fish and wildlife resources of the basin, including related needs and problems, and also describes the probable effects that proposed water development projects will have on various fish and wildlife resources. This appendix also includes a plan suggesting general means whereby fish and wildlife resources can be protected and improved for the enjoyment of present and future human populations of the basin and vicinity. This appendix was prepared by the U. S. Fish and Wildlife Service for the U. S. Army Engineer District, Philadelphia, Pa.

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East African Freshwater Fisheries Research Organization Annual Report 1960, 51 pp., printed, 4s. (about 60 U. S. cents). East African Fisheries Research Organization, P. O. Box 343, Jinja, Uganda. Describes scientific work accomplished in the study of nile perch, algology and hydrology, invertebrates, breeding and experimental growth of Tilapia, and the fisheries of Lake Victoria and Lake Naivasha. Also includes a bibliography of recent publications on East African fisheries and related subjects, and appendices of research papers on fisheries.

FARM PONDS:

Improve and Manage Farm Ponds, 2 pp., illus., printed. Missouri Conservation Commission, Jefferson City, Mo., 1959.

FEDERAL REGULATIONS:

Code of Federal Regulations, Title 50--Wildlife and Fisheries (Revised as of January 1, 1961), 50 CFR 1.1, 214 pp., printed, $3.75. Office of the Federal Register, National Archives and Records Service, General Services Administration, Washington, D. C. (For sale by the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C.) Contains codification of documents of general applicability and future effect as of January 1, 1961, with ancillaries and index, referring to commercial fisheries, sport fishing, and wildlife. It replaces the volume published in 1949 entitled Title 50--Wildlife, becoming an integral part of the Code of Federal Regulations. In consolidating the material in Title 50, with subsequent changes and additions, there have been included all rules and regulations, general and permanent in nature, duly promulgated on or before December 31, 1960, and effective as to facts arising on and after January 1, 1961. The book is divided into chapters on the U. S. Bureau of Sport Fisheries and Wildlife; the U. S. Bureau of Commercial Fisheries; and international regulatory agencies (fishing and whaling). The chapter on the Bureau of Commercial Fisheries covers field organization; the North Pacific commercial fisheries; administration of the Pribilof Islands (fur seals); whaling provisions; the Northwest Atlantic haddock and cod fisheries; and Federal aid to the fisheries. It also covers processed fishery products: inspection and certification; and U. S. standards for frozen fried fish sticks, raw breaded shrimp, fish blocks, haddock fillets, raw headless shrimp, and other frozen products. The chapter on international regulatory agencies discusses the provisions of the International Pacific Halibut Commission and the International Whaling Commission.

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Fish Farming in Farm Dams, Fisheries Circular No. 4, 4 pp., processed. Fisheries & Game Department, 605 Flinders St., Melbourne, Australia, July 1959.

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"Fish Flour for Human Consumption," by J. H. Olden, article, Current Affairs Bulletin, Indo-Pacific Fisheries Council, no. 28, August 1960, pp. 11-19, printed. Indo-Pacific Fisheries Council, FAO Regional Office, Bangkok, Thailand.

"Notes on Tests in Thailand on the Acceptability of Good Quality Fish Meal for Human Consumption," by Uthai Bisolyaputra and Kosol Suriyong, article, Proceedings, Indo-Pacific Fisheries Council, 8th Session, Section II, December 1958, pp. 82-84, printed. Indo-Pacific Fisheries Council Secretariat, FAO Regional Office for Asia and the Far East, Bangkok, Thailand, 1960.

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Journal of Biochemistry and Physiology, National Research Council, Ottawa, Canada.

FISH MEAL:

"Presente y Futuro de la Harine" (Present and Future of Fish Meal), article, Pesca, vol. II, no. 6, June 1961, pp. 15-31, illus., printed in Spanish. Pesca, Av. Wilson 911, Oficina 602, Apartado 2218 Lima, Peru. A study of the fish meal world market, based on a Food and Agriculture Organization report on fish meal marketing. It contains an analysis of the factors affecting demand, consumption trends, and future plans for the principal consumers and producing countries. Includes statistics on imports, exports, and consumption of fish meal in various countries.

'Unidentified Growth Factors in Fishery Products," by Roger Berglund, article, Feedstuffs, vol. 33, April 1, 1961, pp. 16-17, printed. Feedstuffs, Miller Publishing Co., 2501 Wayzata Blvd., Minneapolis 5, Minn.

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FISH OILS:

"Autoxidation of Fish Oils. I--Identification of Volatile Monocarbonyl Compounds From Autoxidized Salmon Oil," by T. C. Yu, Edgar A. Day, and Russel O. Sinnhuber, article, Journal of Food Science, vol. 26, March-April 1961, pp. 192-197, printed. Department of Food and Dairy Technology, Oregon State College, Corvallis, Oreg.

"Effect of Short-Term Feeding of Fish Oils of Antioxidants on Plasma and Liver Cholesterol in the Rat," by M. E. Nimni and others, article, Journal of Nutrition, vol. 73, March 1961, pp. 243-246, printed. American Institute of Nutrition, 36th St. at Spruce, Philadelphia 4, Pa.

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"Bioassay of Ciguatera Toxin," by Albert H. Banner and others, article, Nature, vol. 189, January 21, 1961, pp. 229-230, printed. Nature, St. Martin's Press, Inc., 175 Fifth Ave., New York 10, N. Y.

Ciguatera-Poisoning by Fishes of Tropic Seas, by J. E. Randall, Publications on Fisheries No. 1, 7 pp., printed. Caribbean Commission, San Juan, Puerto Rico, 1961.

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"Electrophoretic Study in Starch Gel of Serums of Fish: Cyclostomes, Selachians, and Teleosts," by Andree Drilhon, article, Comptes Rendus des Seances de la Societe de Biologie et de ses Filiales, vol. 153, 1959, 1532-1535, printed. Masson et Cie., Libraires de l'Academie de Medecine, 120 Blvd. St. Germain, Paris (6e), France.

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Liquid Feed Concentrate from Fishes and Fish Wastes, by J. Majewski, Polish Patent No. 42,729, December 28, 1959, printed in Polish. Urzad Patentowy, Polskiej Rzeczypospolitej Ludowej, Al. Niepodleglosci, 188, Warsaw 10, Poland.

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"Economic Effects of Fishery Regulation," article, Trade News, vol. 13, no. 12, June 1961, pp. 3-5, illus., processed. Trade News, Information and Education Service, Department of Fisheries, Ottawa, Canada. Discusses the FAO Expert Meeting on the Economic Effects of Fishery Regulation, held in Ottawa, June 12-17, 1961. The meeting was the first international gathering of its kind on the North American continent. Countries represented included Canada, Chile, Denmark, France, Iceland, Japan, Norway, Philippines, South Africa, Spain, the United Kingdom, and the United States. There were also participants from several international fisheries commissions, the FAO itself, and other agencies. Papers were presented on the economics of regulating fisheries; the effects of regulations on the catch; and related subjects. Biologists, economists, and other specialists in the field of fisheries must combine forces in assembling the data required by administrators and policymakers to arrive at sound decisions, one expert concluded.

FISHERY RESEARCH:

Fishing Effort--The Effect of Fishing on Resources and the Selectivity of Fishing Gear (Proceedings of the Joint Scientific Meeting of ICNAF, ICES and FAO, 27 May-3 June 1957), Reports-vol. 1, 45 pp., printed. Food and Agriculture Organization of the United Nations, Viale delle Terme di Caracalla, Rome, Italy, 1960.

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"Susquehanna Fishways Studied at Bonneville Lab.," by Russell S. Orr, article, Pennsylvania Angler, vol. 30, no. 8, August 1961, pp. 2-5, illus., printed, single copy 10 cents. Pennsylvania Fish Commission, South Office Bldg., Harrisburg, Pa.

FOOD AND AGRICULTURE ORGANIZATION:

A List of Experts Concerned with the Study of Algae, FAO Fisheries Biology Technical Paper No. 7, 33 pp., processed. Fisheries Division, Biology Branch, Food and Agriculture Organization of the United Nations, Rome, Italy, May 1961. This is one of a series of technical papers in which are listed the names and addresses of persons known to FAO to be conducting research on, or interested in, a particular subject within the general field of aquatic sciences and fisheries research.

Marketing Problems and Improvement Programs, by J. C. Abbott, FAO Marketing Guide No. 1, 282 pp., illus., printed. Food and Agriculture Organization of the United Nations, Viale delle Terme di Caracalla, Rome, Italy, 1958. This guide provides a

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better understanding of marketing, brings about a wider appreciation of its significance, and indicates ways in which existing marketing practices may be improved. The introductory chapter discusses the importance of marketing and practical problems and programs. Chapter 2 deals with the main elements in marketing and their part in the marketing system. Assembly, distribution, transport, storage, grading and standardization, wholesale distributors, marketing margins, supply and demand, monopoly, and other related topics are covered in this chapter. Characteristic marketing problems are discussed in Chapter 3, beginning at farm level and continuing through to the wholesale and retail phases of marketing and the provision of facilitating services. Methods of introducing improvements are the subject of the final chapter. This chapter deals with private enterprise, marketing cooperatives, marketing boards, government regulatory programs, government facilitating programs, government marketing departments, and FAO assistance in marketing development. Also includes additional papers on marketing as well as a selected bibliography.

FREEZE-DRYING:

"Absorption of Atmospheric Moisture in Freeze-Dried Pork and Fish," by Norman A. Matheson, article, Nature, vol. 184, December 19, 1959, pp. 1949-1950, printed. Nature, St. Martin's Press, Inc., 175 Fifth Ave., New York 10, N. Y.

"Accelerated Freeze Drying. I--Developments to Date," by J. McN. Dalgleish, article, Food Manufacture, vol. 36, February 1961, pp. 56-59, printed. Food Manufacture, Leonard Hill Ltd., Stratford House, 9 Eden Street, London NW1, England.

"Commercial Application of Accelerated Freeze-Drying," article, Canadian Refrigeration and Air-Conditioning Journal, vol. 26, no. 9, September 1960, pp. 21-22, illus., printed. Canadian Refrigeration and Air-Conditioning Journal, National Business Publications Ltd., 137 Wellington St. W, Toronto, Canada.

"How Microwaves Speed Freeze-Drying," by R. V. Decareau, article, Food Engineering, vol. 33, no. 8, August 1961, pp. 34-36, illus., printed, single copy $1. Food Engineering. Chilton Company, Chestnut and 56th Sts., Philadelphia 39, Pa. In summary the author states that "high-frequency energy readily penetrates even thick frozen foods, sublimes the ice without raising product temperature. Economics of microwaves are promising as an adjunct to conventional heating." An illustration shows a closeup of microwave freeze-drying chamber with random loading of shrimp on plastic trays.

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SMALL BUSINESS MANAGEMENT:

Depreciation Costs - Don't Overlook Them, by Carl P. N. Jensen, Small Marketers Aid No. 68, 4 pp., printed. Small Business Administration, Washington 25, D. C., June 1961. A report on the importance of considering depreciation costs in managing a small firm. Discusses depreciation as a business expense. Explains how depreciation is determined and emphasizes the importance of periodically setting aside equipment-replacing funds. Included is a simple record form which the owner-manager can use to keep track of his depreciation expenses.

Designing for Higher Profits, by Robert B. Sleight, Technical Aids for Small Manufacturers No. 75, 4 pp., printed. Small Business Administration, Washington 25, D. C., July-August 1961. An aid for businessmen and technical executives. In summary, the author states that "Designing for higher profits often means building more comfort and convenience into equipment, work places, and methods. It means trying to arrange the physical things associated with a job in the best way for the operator. Well-designed products are more salable. Well-designed work places are more comfortable and efficient. Well-designed methods are less costly. Top technical people in small plants would do well to look for the chances to improve design." This aid tells of actual business situations and how they were handled. These situations suggest approaches which can be adapted by others to their own needs.

SOUTH CAROLINA:

Common Marine Fishes of South Carolina, by Charles M. Bearden, Contribution No. 34, 44 pp., illus., printed, 8 cents. Bears Bluff Laboratories, Wadmalaw Island, S. C., July 1961. At least 250 species of marine fish are found in South Carolina's marine waters. Many of these species are commonly taken by sports and commercial fishermen and some are important food and game fish. This publication contains information on the identities and habits of some of the more common salt-water fish. Approximately 20 species of salt-water fish, taken chiefly by otter trawl, haul seine, and gill net, enter the commercial catch annually. Spot, shad, and mullet have made up the bulk of the commercial catch in recent years and are the State's most valuable commercial fish.

SPOILAGE:

"Changes in the Actin of Cod Flesh during Storage at -14° C.," by J. J. Connell, article, Journal of the Science of Food and Agriculture, vol. 11, September 1960, pp. 515-519, printed. Journal of the Science of Food and Agriculture, Society of Chemical Industry, 14 Belgrave Sq., London SW1, England.

"Formation of Acetoin in Cod and Other Bottom-Fish Fillets during Refrigerated Storage," by H. S. Groninger, article, Food Technology, vol. 15, no. 1, January 1961, pp. 10-12, illus., printed. Food Technology, The Garrard Press, 510 N. Hickory, Champaign, Ill.

"Studies on the Determination of Spoilage in Brined Fresh-Water Fishes. I--Comparison of Various Methods for the Determination of Spoilage in Brined Carassius carassius," by Eiichi Kuroda, article, Bulletin of the Japanese Society of Scientific Fisheries, vol. 26, September 1960, pp. 944-948, printed. Japanese Society of Scientific Fisheries, 6-chome, Shiba-Kaigandori, Minato-ku, Tokyo, Japan.

SQUID:

"Studies on the Complete Utilization of Squid (Ommastrephes sloani, pacificus). XVII--On the 'Flat Sour' of Canned Squid Meat," by Eiichi Tanikawa and Yoshio Nagasawa, article, Bulletin of the Faculty of Fisheries, Hokkaido University, vol. 9, August 1958, pp. 138-144, printed in Japanese with English abstract. Hokkaido University, Kameda-Machi, Hakodate, Japan.

THESE PUBLICATIONS ARE NOT AVAILABLE FROM THE FISH AND WILDLIFE SERVICE, BUT USUALLY MAY BE OBTAINED FROM THE ORGANIZATION ISSUING THEM.

STORAGE:
"Storage of Fried Hake," by G. M. Dreosti and A. M. Atkinson, article, Fishing Industry Research Institute, Thirteenth Annual Report for 1959, pp. 18-19, printed. Fishing Industry Research Institute, Cape Town, Republic of South Africa.

TIDES:
Tide Tables--Central and Western Pacific Ocean and Indian Ocean, 1962, 385 pp., printed, $1. U. S. Department of Commerce, Coast and Geodetic Survey, Washington 25, D. C., August 1961. High and low water predictions.

TILAPIA:
"The Culture of Tilapia nigra (Gunther) in Ponds. IV--The Seasonal Growth of Male T. nigra," by V. D. van Someren and P. J. Whitehead, article, East African Agricultural and Forestry Journal, vol. 26, no. 2, October 1960, pp. 79-86, printed. East African Agricultural and Forestry Journal, Box 21, Kikuyu, Kenya.

"The Culture of Tilapia nigra (Gunther) in Ponds. V--The Effect of Progressive Alterations in Stocking Density on the Growth of Male T. nigra," by V. D. van Someren and P. J. Whitehead, article, East African Agricultural and Forestry Journal, vol. 26, no. 3, January 1961, pp. 145-155, printed. East African Agricultural and Forestry Journal, Box 21, Kikuyu, Kenya.

TOXINS:
"Fish-Killing Factor Produced by Proteus vulgaris. I--Production of the Toxic Factor," by Hideo Moriyama and Hiroshi Ueno, article, Japanese Journal of Microbiology, vol. 3, 1959, pp. 105-112, printed in English, French, or German. Japanese Journal of Microbiology, Maruzen Co., Ltd., 303 Fifth Ave., New York 16, N. Y.

TRAWLS:
"Preventing Damages to Trawls," by S. M. Barkan and G. D. Silukov, article, Rybnoe Khoziaistvo, vol. 34, 1958, pp. 53-56, printed in Russian. Rybnoe Khoziaistvo, VNIRO Glavniproekta, pri Gosplanie SSSR, Moscow, U. S. S. R.

TRINIDAD:
"Availability of Fish in Trinidad Waters in 1960," by J. S. Kenny and D. E. Lagois, article, West Indies Fisheries Bulletin, no. 3, May/June 1961, pp. 1-14, processed. Ministry of Natural Resources and Agriculture, Federal House, Port-of-Spain, Trinidad, West Indies.

TROPICAL MARINE FISH:
Larval and Adult Stages of the Stromateoid Fish PSENES REGULUS With Comments on Its Classification, by Thomas W. McKenney, Contribution No. 317, 25 pp., illus., printed. (Reprinted from Bulletin of Marine Science of the Gulf and Caribbean, vol. 11, no. 2, June 1961, pp. 210-236.) Institute of Marine Science, University of Miami, #1 Rickenbacker Causeway, Miami 49, Fla.

TROUT:
"Studies on the Digestive Enzymes of Rainbow Trout. I--Carbohydrases," by Manabu Kitamikado and Shinko Tachino, article, Bulletin of the Japanese Society of Scientific Fisheries, vol. 26, July 1960, pp. 679-684, printed. Japanese Society of Scientific Fisheries, 6-chome, Shiba-Kaigandori, Minato-ku, Tokyo, Japan.

TUNA:
"Expansion of N.S.W. Tuna Fishing Industry," by J. Freijs, article, The Refrigeration Journal, vol. 14, no. 6, December 1960, pp. 45, 47, 59, illus., printed. The Refrigeration Journal, Australian Institute of Refrigeration, 62 Margaret St., Sydney 1, Australia.

"A Method for Removing Oils from Oily 'Katsuobushi' and Other Dried Strips," by Takashi Kaneda and others, article, Bulletin of the Japanese Society of Scientific Fisheries, vol. 26, December 1960, pp. 1204-1209, printed. Japanese Society of Scientific Fisheries, 6-chome, Shiba-Kaigandori, Minato-ku, Tokyo, Japan.

The Purse Seine Revolution in Tuna Fishing, by Richard L. McNeely, 27 pp., illus., printed. (Reprinted from Pacific Fisherman, June 1961, pp. 27-58.) Pacific Fisherman, Miller Freeman Publications, 731 South West Oak St., Portland 5, Oreg.

"Studies on an Unknown Factor in the Pyloric Caeca of Skipjack. II--Characteristics of the Unknown Factor (Part 1)," by Daiichi Kakimoto, article, Bulletin of the Japanese Society of Scientific Fisheries, vol. 26, August 1960, pp. 765-770, printed. Japanese Society of Scientific Fisheries, 6-chome, Shiba-Kaigandori, Minato-ku, Tokyo, Japan.

"Studies on the Unknown Factor in the Pyloric Caeca of Skipjack. III--Isolation and Characterization of the Unknown Factor," by Daiichi Kakimoto, article, Bulletin of the Japanese Society of Scientific Fisheries, vol. 26, October 1960, pp. 989-995, printed. Japanese Society of Scientific Fisheries, 6-chome, Shiba-Kaigandori, Minato-ku, Tokyo, Japan.

TURKEY:
Balik ve Balikcilik (Fish and Fishery), vol. 9, no. 6, July-August 1961, 28 pp., illus., printed in Turkish with English table of contents. Balik ve Balikcilik, Balikcilik Mudurlugu, Besiktas, Istanbul, Turkey. Includes the following articles: "The Use of Dolphin Skins in Industry," by Hikmet Akgunes; "Gurnard and Its Fishing," by Sitki Uner; "Of Biological and Hydrodynamic Sounds Emitted by Fish," by Muzaffer Atli; "The Biology and Appearance of Mackerel (Part III)," by Huseyin Uysal; and "Turkey's 1960 Fish Exportation," by Sadan Barlas.

TURTLES:
"The Ecology and Migrations of Sea Turtles. 4--The Green Turtle in the Caribbean Sea," by A. Carr and L. Ogren, article 1, Bulletin, American Museum of Natural History, vol. 121, 1960, 48 pp., illus., printed. American Museum of Natural History, Central Park West and 79th St., New York, N. Y.

UNITED KINGDOM:
Fisheries of Scotland Report for 1960, 108 pp., printed, 5s. 6d. (about 77 U. S. cents). Department of Agriculture and Fisheries for Scotland, Aberdeen, Scotland, June 1961. (Available from Her Majesty's Stationery Office, 13A Castle St., Edinburgh 2, Scotland.)

THESE PUBLICATIONS ARE NOT AVAILABLE FROM THE FISH AND WILDLIFE SERVICE, BUT USUALLY MAY BE OBTAINED FROM THE ORGANIZATION ISSUING THEM.

Herring Industry Board, Twenty-Sixth Annual Report, 1960, 60 pp., printed, 3s. (about 42 U. S. cents). Her Majesty's Stationery Office, 13A Castle St., Edinburgh 2, Scotland, March 29, 1961. Reports on the herring fisheries in the North Sea; commercial and statutory arrangements between or concerning the Herring Industry Board, the catches, and the shore-based sections of the industry; markets and marketing; production, research, and development; and the herring fleet. Contains statistical tables showing the landings and value of catches and disposal of landings during the winter, summer, and autumn seasons; composition of the fleet in the Irish Sea area; and related data.

U. S. S. R.:
Kholodil'naia Tekhnika, no. 3, 1961, 80 pp., illus., printed in Russian with English table of contents and summaries. Kholodil'naia Tekhnika, c/o Four Continent Book Corp., 822 Broadway, New York 3, N. Y. Includes, among others, the following articles: "Low Temperature Storage of Cod and Ocean Perch," by A. I. Piskarev, A. P. Bornovalova, and L. G. Lukyanitsa; "All-Union Scientific Technical Conference of Specialists in the Fishing Industry;" and "Seminar of Technologists of the Estonian Fishing Industry."

VESSELS:
"External Cathodic Protection of Floating Craft," article, Chemistry and Industry, no. 8, February 25, 1961, pp. 228-229, printed. Society of the Chemical Industry, 14 Belgrave Sq., London, SW1, England.

VITAMINS:
"Vitamin B_1 Content of the Skin and Muscle of Marine Fishes," by Kazuko Oka, Chemical Abstracts, vol. 53, no. 22589h, November 25, 1959, printed.

WEATHER CHARTS:
Coastal Warning Facilities Chart, Canadian Border to Eureka, Calif., and Alaska, 1961, 1 p., processed, 10 cents. Weather Bureau, U. S. Department of Commerce, Washington, D. C. (For sale by the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C.) The chart shows stations displaying small craft, gale, whole gale, and hurricane warnings, explanation of warning displays, and schedules of AM and FM radio and TV stations that broadcast weather forecasts and warnings.

WORLD TRADE:
The following World Trade Information Service Reports, published by the Bureau of Foreign Commerce, U. S. Department of Commerce, Washington, D. C., are for sale by the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C., at 10 cents a copy.

Import Tariff System of Switzerland, Operations Report No. 61-39, WTIS Part 2, 2 pp., printed, June 1961.

Import Tariff System of the Bahamas, Operations Report No. 61-40, WTIS Part 2, 2 pp., printed, June 1961.

YELLOW PIKE:
"Factors Related to Commercial Production of the Walleye in Red Lakes, Minnesota," by Lloyd L. Smith, Jr. and Richard L. Pycha, article, Transactions of the American Fisheries Society, vol. 90, no. 2, 1961, pp. 190-217, printed. Librarian, A & M College, Ft. Collins, Colo.

YELLOWTAIL:
"Oil of Yellowtail (Seriola quinqueradiata). I--Fats Contained in Various Parts of the Body in the Process of Gonad Maturation," and "II-Seasonal Variation of Component Fatty Acids of Viscera Oil," by H. Tsuyuki, A. Shionoya, and T. Matsumoto, articles, Yukagaku, vol. 7, 1958, pp. 189-195, and vol. 8, 1959, pp. 31-34, respectively, printed in Japanese. Nippon Yukagaku Kyukai, Department of Applied Chemistry, Faculty of Engineering, University of Tokyo, Motofujicho, Bunkyo-ku, Tokyo, Japan.

Coastal Warning Facilities Chart, Eureka to Point Conception, Calif., 1961, 1 p., processed, 10 cents, Weather Bureau, U. S. Department of Commerce, Washington, D. C. (For sale by the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C.)

WHITEFISH:
Gill-Net Selectivity of Lake Whitefish from Goderich-Bayfield Area, Lake Huron, 4 pp., printed. (Reprinted from Transactions of the American Fisheries Society, vol. 90, no. 3, July 1961, pp. 337-340.) Librarian, Colorado A & M College, Ft. Collins, Colo.

FEDERAL REFUGE AND FISH HATCHERY MEN GET UNIFORMS

The field men operating National Wildlife Refuges and National Fish Hatcheries of the U. S. Bureau of Sport Fisheries and Wildlife will be in uniform and identifiable as associated with the Federal natural resource development program, the Department of the Interior reported on August 30, 1961. The change was effective July 1 but employees had until November 1, 1961, to purchase uniforms. Approximately 1,200 employees are affected.

U. S. Fish and Wildlife Service employee wearing new uniform.

The uniform will be a tan mixture with a gold arm patch carrying the insignia of Interior's Fish and Wildlife Service. The Bureau of Sport Fisheries and Wildlife will be designated by a shoulder tab. Regional supervisors and Regional technical personnel of the operations mentioned will wear the uniform while in the field.

The regulations provide that the official uniform is to be worn by personnel on duty at field station headquarters, while engaged in routine duties, while distributing fish, while visiting stations on official business, and while representing the Bureau at meetings and when working with the public.

The uniform will be gabardine or dacron-wool tropical depending upon the need. It will consist of a cruiser coat or "Eisenhower" jacket, trousers, "open-road" style hat, or ski cap as the occasion requires, a poplin or dacron-wool shirt and tie, socks, shoes or boots, and belt. A suit coat may be worn by some. Supplementary items include cold weather and rough duty jackets and trousers, and various hard-work items.